FMC Idaho LLC, Pocatello, Idaho

FMC OU REMEDIAL DESIGN
SOIL REMEDIAL ACTION
SUPPORTING DOCUMENTS

- Emergency Response Plan
- Transportation and Off-Site Disposal Plan
- Draft Performance Standards Verification Plan
- Draft Operations, Monitoring, and Maintenance Plan

January 2015

MWH

FMC Idaho LLC, Pocatello, Idaho

FMC OU REMEDIAL DESIGN
EMERGENCY RESPONSE PLAN

July 2014
Revised January 2015

MWH

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Figures (follow text)

1.0 INTRODUCTION

This Emergency Response Plan (ERP) has been prepared by MWH on behalf of FMC Corporation (FMC) for the remedial design and remedial action (RD/RA) FMC is conducting at the FMC OU as directed under the Unilateral Administrative Order (UAO; EPA, 2013) that the U.S. Environmental Protection Agency (EPA) issued to FMC effective June 20, 2013. This ERP includes procedures designed to minimize hazards to human health or the environment from fires or any unplanned releases of hazardous wastes associated with work conducted pursuant to the UAO. At this point, the ERP has been prepared to address the soil remedy and groundwater remedy construction portion of the CERCLA remedial action. The ERP will be updated, modified, or expanded during the progression of the RD/RA,

In accordance with Paragraph 30.c.7.bb of the RD/RA UAO, this ERP describes procedures to be used in the event of an accident or emergency at the FMC OU (for example, power outages, slope failure, fire, etc.). The ERP includes:

- Name of the person or entity responsible for responding in the event of an emergency incident (Section 3);
- Plan and date(s) for meeting(s) with all appropriate authorities under the circumstances, including emergency response personnel and hospitals if relevant (Section 3);
- Spill Prevention, Control, and Countermeasures (SPCC) Plan (Appendix A);
- Notification activities in accordance with Paragraph 57 of the UAO in the event of a release of hazardous substances requiring reporting under Section 103 of CERCLA, 42 U.S.C. § 9603, or Section 304 of the Emergency Planning and Community Right-to-Know Act ("EPCRA"), 42 U.S.C. § 11004 (Section 8); and
- A description of all necessary actions to ensure compliance with Section XXI (Emergency Response) of the UAO in the event of an occurrence during the performance of the work that causes or threatens a release of Waste Material from the FMC OU that constitutes an emergency or may present an immediate threat to public health or welfare or the environment (Section 8).

This ERP applies to work being conducted pursuant to the remedial actions set forth in the Interim Amendment to the Record of Decision for the Eastern Michaud Flats (EMF) Superfund Site FMC Operable Unit (IRODA; EPA, 2012) and the RD/RA.

1.1 PROJECT LOCATION

The EMF Superfund Site includes two adjacent production facilities, the former FMC Corporation elemental phosphorus (P4) processing plant that ceased operation in 2001 and a phosphate fertilizer processing facility currently operated by the J.R. Simplot Company. The EMF Site is shown on Figure 1 and encompasses both the FMC and Simplot plants and

surrounding areas (Off-Plant Operable Unit [OU]) affected by releases from these facilities. The FMC Plant OU (FMC OU) of the EMF Site, consisting of the FMC Plant Site and other FMC-owned properties at the site, is on privately-owned fee land, most of which is located within the exterior boundaries of the Fort Hall Indian Reservation. As shown on Figure 2, the FMC OU occupies approximately 1,450 acres in Power County, Idaho approximately 2.5 miles northwest of the city of Pocatello and consists of the FMC Plant Site (i.e., the former operating facility located south of Highway 30), the Southern and Western Undeveloped Areas (SUA and WUA) that are also located south of Highway 30, and FMC-owned Northern Properties located north of Highway 30. The easternmost portions of the FMC OU are located outside the reservation boundary.

1.2 PROJECT DESCRIPTION

The selected soil remedy for the FMC OU addresses metals, radionuclides, and other contaminants of concern (COC) identified in soils, fill, and groundwater at the FMC OU. Additional details of the selected soil remedy can be found in the Remedial Design Work Plan for the FMC OU (MWH, 2013). Components of the selected soil remedy ("the Project") addressed by this ERP include the following:

- Site-wide grading, including grading to establish a site-wide stormwater management system, to prepare for construction of gamma radiation-protective soil covers and evapotranspiration (ET) caps;
- Placement of ET caps over areas that contain non-slag fill (such as elemental phosphorus, phossy solids, precipitator solids, kiln scrubber solids, industrial waste water sediments, calciner pond solids, calcined ore, and plant/construction landfill debris) to prevent 1) migration of contaminants to groundwater, preventing the infiltration of rainwater, and 2) direct contact with contaminants by current and future workers. ET caps will be placed over the following remediation areas (RAs): RA-B, RA-C, RA-D, RA-E, RA-F1, RA-F2, RA-H, and RA-K as shown on Figure 2;
- Placement of approximately 12 inches of soil cover over 1) areas containing slag fill, 2) ore stockpiles, and 3) the former Bannock Paving areas to prevent gamma radiation and fugitive dust exposure to future site workers. Gamma radiation-protective soil covers will be placed over RA-A, RA-A1, RA-F, and RA-G, as shown on Figure 2;
- Excavate contaminated soil from Parcel 3 of FMC's Northern Properties, also known as RA-J, and consolidate that soil onto the Former Operations Area to prevent exposure of residents and future workers to elevated levels of radionuclides in surface soil; and,
- Clean underground stormwater piping in RA-A which may contain elemental phosphorus and radionuclides to prevent exposure to potential future workers.

The selected groundwater remedy for the FMC OU addresses metals and other contaminants of concern (COC) identified in groundwater at the FMC OU. Additional details of the selected groundwater remedy can also be found in the Remedial Design Work Plan for the FMC OU (MWH, 2013). Components of the selected groundwater remedy construction addressed by this ERP include the following:

- Installation and development of a network of extraction wells located in the northeastern corner of the former FMC Plant Site to capture impacted shallow groundwater before it can migrate down gradient beyond the FMC Plant Site boundary;
- Site preparation, construction, and start-up/shakedown of a groundwater treatment system to be located in the northeastern corner of the FMC site; and
- Construction of one or more percolation / evaporation basins (created within the cap material borrow area in the western undeveloped area of the FMC Plant Site).

Other actions, including post-closure activities at the RCRA-regulated units, have been and continue to be performed at the FMC site. These actions are not part of the CERCLA remedial action at the FMC OU because they are conducted under RCRA requirements for closed hazardous waste management units. The post-closure work performed at these units remains regulated under RCRA.

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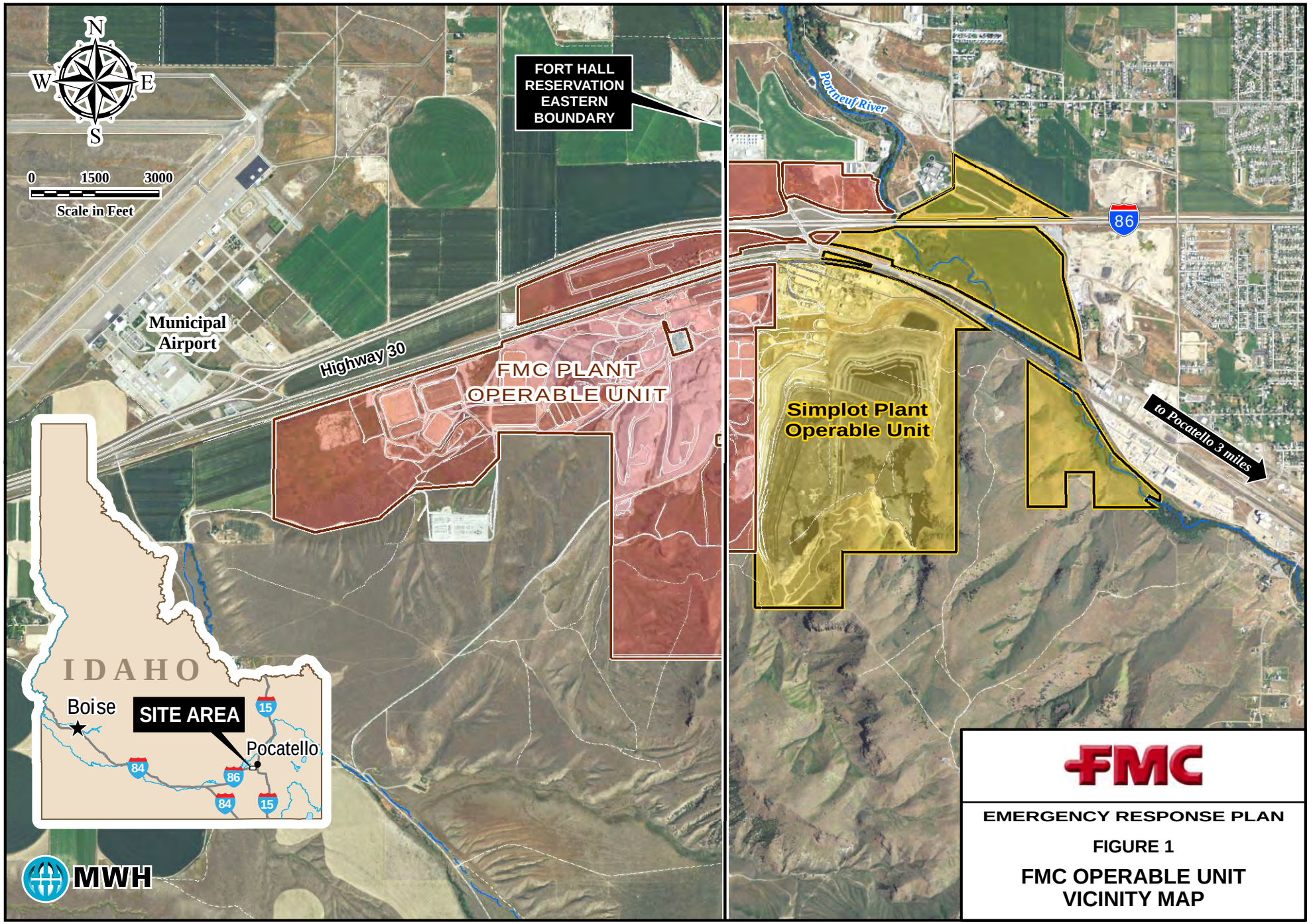

Legend

- FMC OU Boundary
- Remediation Area
- Simplot Property Boundary
- Existing capped areas (~85 acres)

FORT HALL RESERVATION EASTERN BOUNDARY

RA-I
RA-I
RA-J
RA-J
RA-I
RA-I
RA-G
RA-B
RA-A
RA-E
RA-A
RA-C
RA-D
RA-F
RA-G
RA-D
RA-E
RA-H
RA-H

86

WESTERN UNDEVELOPED AREA

SOUTHERN UNDEVELOPED AREA

N
W
E
S

0 700 1400
Feet

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FMC

EMERGENCY RESPONSE PLAN

FIGURE 2

FMC OPERABLE UNIT SITE PLAN

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2.0 DOCUMENT HIERARCHY

There are a number of documents associated with hazardous material and waste management, emergency response, and health and safety at the FMC site. It is important to understand the scope and purpose of each of these documents. The key documents are described below:

- *RCRA Facility-Wide Contingency Plan*: This document provides emergency response and notification actions for a less than 90-day hazardous waste generator accumulation area and potential hazards associated with 1) a fixed phosphine gas adsorption system (termed the 10X Gas Extraction and Treatment System or GETS) located at a closed waste management unit identified as Pond 16S, 2) smaller mobile phosphine gas extraction adsorption systems (termed GES) that may be located at other closed waste management units within the fenced "RCRA Pond Area," and 3) the overall set of RCRA-regulated waste management units, all of which are now closed. While the implementation of the soil remedy and groundwater remedy construction will not directly impact activities or operations regulated under RCRA, the coordination of the emergency response for all activities at the FMC facility is necessary. This Emergency Response Plan and Incident Command protocol have been developed to be aligned with the emergency procedures described in that RCRA Contingency Plan, while the scope of applicability and reporting protocols differ between the two.
- *Spill Prevention, Control and Countermeasure Plan (SPCC Plan)*: This document provides an inventory, regulatory guidance, procedures for handling and storage, and spill prevention and response for those materials that are regulated by the SPCC requirements of 40 CFR Part 112, i.e., oils and petroleum products. An updated SPCC Plan is provided in Appendix A. This document has been revised to reflect the actual quantities and locations of fuel and oil storage necessary for the implementation of the soil remedy. If additional fuel and oil storage is required for the groundwater remedy construction, the SPCC will be amended at that time.
- *Site-Wide Health and Safety Plan (SWHASP, FMC 2013)*: This document provides generally required health and safety practices and procedures for FMC employees and its contractors working at the FMC site. The procedures were developed in accordance with the provisions of 29 CFR 1910.120 (Hazardous Waste Operations and Emergency Response - HAZWOPER). FMC and its contractors comply with all applicable sections of 29 CFR Parts 1910 and 1926 and the SWHASP incorporates those standards by reference. Each contractor working on site is required to develop their own HASP consistent with the SWHASP.

3.0 EMERGENCY RESPONSE PERSONNEL

3.1 FMC INCIDENT COMMANDER

FMC's emergency response organization is based on the Incident Command System (ICS) used by local, state, and federal agencies and the military. The ICS organizational structure is flexible, responsive, and capable of orderly expansion if a simple initial response escalates to become an emergency that requires greater resources. All ICS functions are managed by an FMC Incident Commander – a single individual with authority for overall management of the incident. At least one person who is qualified to be an FMC Incident Commander will be on call locally. The FMC Incident Commander and Alternate are designated below:

FMC INCIDENT COMMANDER (EMERGENCY COORDINATOR) AND ALTERNATE

Name	Phone Numbers	Address
FMC Incident Commander (Emergency Coordinator)		
Mark Smith	Cell: (208) 681.8227 Office: (208) 232.6276 Home: (208) 232.3595	3107 Dartagnan Drive Pocatello, ID 83204
Alternate		
Tim Whiteus	Cell: (208) 241.7576 Office: (208) 232.6276 Home: (208) 241.7576	310 E. Center Street Suite 212 Pocatello, ID 83201

If circumstances arise that prevent Mr. Smith from reaching the site in a short period of time, an alternate individual will be assigned the Incident Commander's authority and responsibility.

3.2 OFFSITE EMERGENCY RESPONSE ORGANIZATIONS

The FMC Pocatello Plant Site currently has arrangements with state and local authorities and emergency response organizations, as summarized below, to provide emergency assistance to the site as necessary. The Fort Hall and Chubbuck Fire Departments, operating under a mutual aid agreement, are the primary fire departments for any fire emergencies at the site that require assistance from offsite responders. Upon arrival at the site, a designated representative will meet the Fort Hall and/or Chubbuck Fire Department at the main entrance to the site and will direct them to the location of the emergency. Both the Fort Hall and Chubbuck Fire Departments are familiar with the overall site layout and operation.

OFFSITE EMERGENCY RESPONSE AGENCIES

FIRE-FIGHTING		
Name	Address	Telephone Number
Chubbuck Fire Department (Co-Primary)	4727 Yellowstone Avenue Chubbuck, ID 83202	911[1] or (208) 237-3212 non-business hours answering machine
Fort Hall Fire and EMF District (Co-Primary)	P.O. Box 306 Fort Hall, ID 83203	(208) 478-3784
Pocatello Fire Department (Alternate)	408 E. Whitman Pocatello, ID 83201	911[1] or (208) 234-6201 non-business hours answering machine

MEDICAL SERVICES		
Name	Address	Telephone Number
City/County Ambulance	408 E. Whitman Pocatello, ID 83201	911[1] or (208) 234-6201 non-business hours answering machine
Power County Ambulance	550 Griffin Road American Falls, ID 83211	911[1] or (208) 226-2319[2]
Life Flight (Helicopter)	777 Hospital Way Pocatello, ID 83201	911[1] or (208) 239-1800[3] or 1-800-237-0911
Portneuf Medical Center	777 Hospital Way Pocatello, ID 83201	911[1] or (208) 239-1800 Non-Emergency (208) 239-1000

POLICE		
Name	Address	Telephone Number
Sheriff – Power County (Primary)	550 Griffin Road American Falls, ID 83211	911[1] or Dispatcher (208) 226-2319[2]
Idaho State Police (Alternate)	5205 South 5th Avenue Pocatello, ID 83204	911[1] or (208) 236-6066
Fort Hall Police Department (Alternate)	PO Box 400 Fort Hall, ID 83203	(208) 237-0137[4] non-business hours answering machine (208) 478-4000[5]

[1]The "911" telephone number contacts the Pocatello Police Department, who will then dispatch the appropriate off-site emergency response organization.

[2]This telephone number contacts the Power County Sheriff's Office Dispatcher, who will dispatch police officers and/or ambulance, as requested.

[3]Telephone number for emergency room; Non-emergency telephone number is (208) 239-1834.

[4]Telephone number for Shoshone-Bannock Tribes Emergency Management & Response (during business hours).

[5]Telephone number for Fort Hall Police Dispatcher (during non-business hours).

A copy of the final ERP will be provided to all the local emergency response organizations identified above that may be required to respond in the event of an emergency at the FMC site. In addition, arrangements will be made with these local emergency response organizations to allow them to become familiar with the FMC site, its emergency response equipment, site emergency response organization, and potential site emergencies prior to commencement of field

work on the Project. The date(s) for those meetings will be included in the final ERP when a firm schedule for mobilization is available.

4.0 EMERGENCY PLANNING

Development of an effective emergency plan starts with identification of potential hazards and/or conditions which could result in an incident and/or emergency. This section catalogs potential hazards and conditions which may exist during the implementation of the Project (Section 1.2) and precautions to prevent incidents and emergencies. Section 5 provides the procedures should an emergency occur.

4.1 FIRE

While the FMC OU is largely covered with slag, inert fill or other non-combustible material, brush is present on areas of the FMC OU; some lands abutting the FMC OU are also brush covered. Brush fires are a potential significant hazard in Southeastern Idaho and proper precautions will be taken to reduce the risk of a fire incident and manage any fire that may occur before it would become an emergency.

In addition to requirements specified in the SWHASP, contractors performing work on the Project shall take the following precautions:

- All FMC contractors have or will develop, maintain and implement an effective fire protection and prevention program in accordance with 29 CFR 1926 Subpart F while working at the FMC site.
- Combustible or ignitable fuel that is stored on-site in temporary or fixed location aboveground storage tanks or smaller hand-carried fuel cans will be stored and managed in accordance with 29 CFR §1926.152.
- Operations involving the potential for fire hazards shall be conducted in a manner to minimize the risk of fire. Fire extinguishers and non-sparking tools shall be available or used as appropriate. Sources of ignition shall be removed. When necessary, explosion-proof instruments and/or bonding and grounding techniques will be used to prevent fire or explosion.
- Hot work, such as welding and torch cutting, will only be permitted in areas approved by the contractor's Site Safety Officer (SSO) for hot work operations. All hot work will require obtaining a "Hot Work Permit" prior to beginning the hot work. As part of the "Hot Work Permit", all contractor employees performing hot work will be properly trained in the safe operation of their equipment and emergency procedures in the event of a fire.
- At a minimum, contractors must have written procedures to authorize, evaluate, and monitor, the hot work. In addition, contractors must ensure that workers and their supervisors are properly trained in these procedures, and in the safe operation of their equipment, the safe use of the process, and emergency procedures in the event of a fire. .

- Fire is a potential hazard anytime during the fire season of April 1 through October 31.

Fire incident response:

Reasonable actions to suppress fires in the project area will be taken by site personnel when appropriate. In the event of a fire, site personnel in the vicinity of the fire will immediately notify the FMC Incident Commander and then determine if they can safely take action (i.e., use readily available fire extinguishers, fire tools, water truck, etc.) to put out or contain the fire. No site personnel shall take action for which they are not properly trained.

If the fire is too big to extinguish with the use of a provided extinguisher, site personnel will evacuate the area and/or take actions as directed by the FMC Incident Commander. The FMC Incident Commander will make the determination to call in local firefighting as appropriate (Section 3.2).

4.2 SPILLS/RELEASES

The Spill Prevention Control and Countermeasure (SPCC) Plan included as an appendix to this ERP outlines hazards, precautions, and release response for oil spills/releases. Other liquids which will be managed during the Project include:

- Decontamination waters and water/sediment removed during the clean out of the storm sewers.
- Groundwater with minor sediment, consisting of filter pack material and fines from the natural formation removed during extraction well development.
- Start-up/shakedown quantities of groundwater treatment reagents ($FeCl_3$ and ionic polymers).
- Start-up/shakedown quantities of untreated and treated groundwater.
- Start-up/shakedown quantities of groundwater treatment sludge.

These liquids will be containerized, but the risk of spill exists should a container begin to leak, be ruptured, or during transfer.

In addition to requirements specified in the SWHASP, contractors performing work on the Project shall take the following precautions:

- All containers of liquids will be kept closed except when adding or removing liquids.
- Liquids will not be placed into containers which are not in good condition.
- Containers of liquid will be inspected at least weekly for signs of corrosion or damage which could compromise the integrity of the container. If such a condition is found, liquids will be transferred into a new container as soon as practicable.

- Contractor personnel implementing a bulk transfer are responsible for taking immediate steps to respond to a spill or release during transfer.

- Maintain in an accessible location a spill control kit that includes a 50-pound bag of absorbent material, a square nose shovel, a push broom with handle, a small broom, a dustpan, a 5-gallon bucket, a pair of goggles, and a pair of chemical gloves.

Spill incident response:

- Any leaks or spills will be immediately addressed by the first responder, with additional support as needed. No site personnel shall take action for which they are not properly trained. Contact the FMC Incident Commander to report the event.

- If the spill cannot be contained by on site personnel, site personnel will take actions as directed by the FMC Incident Commander. The FMC Incident Commander will make the determination to call in other responders as appropriate (Section 3.2).

4.3 HAZARDS ASSOCIATED WITH EARTHWORK

During the Project, heavy equipment will be moving approximately 2 million cubic yards of soil and fill materials within the FMC OU to achieve the required grades for storm water control and later construction of caps. Hazards include risk to people due to the presence of heavy equipment, risk of slope failure in certain conditions, disturbance of utilities, and encountering undocumented subgrade conditions.

4.3.1 Heavy Equipment Movement

In addition to requirements specified in the SWHASP, contractors performing work on the Project shall take the following precautions:

Site areas where heavy equipment will be operating shall be communicated to all site personal (including contractors performing work outside the scope of the Project) daily. No changes can be made to daily work plans without notification and agreement from the SSO.

Roadways into areas where heavy equipment will be operating shall be posted to warn entrants and indicate the contact to request access.

Should a personal injury result from a heavy equipment incident, the FMC Incident Commander will make the determination as to how to obtain medical assistance and whether to call in other responders as appropriate (Section 3.2).

4.3.2 Slope Failure

Although unlikely, as no documented slope failures have occurred at the FMC site, a landslide or slope failure may be triggered by an earthquake, earthwork conducted as part of the remedial

action, or a combination of these factors. Grading activities may affect the stability of steep slopes, particularly the steep slopes that current exist on portions of the slag pile.

Conditions that contribute to landslide hazard are slope inclination, soil type, and soil moisture. Steep slopes, as are currently present on portions of the slag pile, and may be vulnerable to slope failure. In addition to requirements specified in the SWHASP, contractors performing work on the Project shall take the following precautions:

- Remedial action earthwork will be performed in such a way as to avoid slope failure.
- Awareness training for risk factors of slope failure and signs of pending instability will be included in safety briefings.

Slope failure response:

After a slope failure, additional slides may occur; therefore, personnel should stay away from the affected area and all workers will meet at a pre-designated muster area. The lead supervisor at each muster location will take roll, and will contact the FMC Incident Commander to determine if it is safe to continue work or if a work area shutdown is required.

Should a personal injury result from a heavy equipment incident, The FMC Incident Commander will make the determination as to how to obtain medical assistance and whether to call in other responders as appropriate (Section 3.2).

4.3.3 Disturbance of Utilities

The FMC OU is traversed by overhead power lines of varying heights and voltages as well as by two buried pipelines – the Williams natural gas pipeline and the Chevron petroleum line. Unintentional disturbance of any of these utilities by heavy equipment during the Project could lead to incidents and emergencies.

In addition to requirements specified in the SWHASP, contractors performing work on the Project shall take the following precautions to prevent unintentional disturbance of utilities:

- Flags and / or mark outs
- No equipment will be operated within 10 feet of an overhead power line. If using a crane/equipment near energized lines rated at 50,000 volts (50 kv) or more, minimum distance between the energized lines and any part of the crane shall be at least 10 feet plus 0.4 inch for each 1,000 volts over 50,000 volts. Any other requirements per CFR Part 1926.

Disturbance of utilities response:

Should a utility be disturbed, personnel should stay away from the affected area and all workers will meet at a pre-designated muster area. The lead supervisor at each muster location will take roll, and will contact the FMC Incident Commander to determine if it is safe to continue work or if a work area shutdown is required.

Should a personal injury result from a utility disturbance, The FMC Incident Commander will make the determination as to how to obtain medical assistance and whether to call in other responders as appropriate (Section 3.2).

4.3.4 Undocumented Subgrade Conditions

The Supplemental Remedial Investigation Report (MWH, 2009) documented waste management practices and the various types of fill present in each remedial unit which was investigated, and later assembled into Remedial Areas at the FMC OU. Table 2 in the IRODA provides a summary of the types of fill which could be encountered during the Project in each RA. Nonetheless, given the long operating history of the FMC site the potential to encounter undocumented subgrade conditions must be considered in identification of potential hazards and/or conditions which could result in an incident and/or emergency. While encountering debris, tramp metal, or other inert materials poses little risk of becoming an incident, emergency planning is required in the event grading disturbs subgrade containing undocumented elemental phosphorus (P4) contaminated materials, an intact drum which could potentially contain hazardous substances, or other buried hazardous materials, such as asbestos-containing materials (ACMs).

The remedial design has been developed to minimize the amount of subsurface disturbance required to achieve the required grade. No disturbance of subsurface areas outside of the planned work zones will be permitted.

In addition to requirements specified in the SWHASP, contractors performing work on the Project shall take the following precautions:

- All personnel working in an area where subsurface disturbance (excavation below the existing ground surface) is underway shall wear a phosphine monitor (a Toxipro or equivalent PH3 meter calibrated per SWHASP Appendix B).
- No subsurface work shall be conducted without a water truck on standby in the area.
- No subsurface work shall be conducted without an 85 gal overpack drum on standby in the area.

Disturbance of P4 contaminated material response:

- If possible to safely do so, cover up the burning/smoking material with other fill materials/soil from an adjacent area using available mobile equipment.
- Immediately contact the FMC Incident Commander.
- If smoking is still evident after covering with fill/soil, continue to add fill/soil and spray with water using the water truck.
- Once the burning/smoking is under control and the FMC Incident Commander has determined the incident is under control then an evaluation of potential actions will be completed using the "Job Planning and Safety Analysis (JPSA)" as found in Appendix D of the *Site-Wide Health and Safety Plan*. The evaluation may include:
    - Trenching around the disturbed area to determine the extent of P4 contaminated material – if smoking is encountered, immediately re-fill the trench and move to a location farther away.
    - Once the extent of P4 contaminated material is estimated, determine if the P4 contaminated material and inert cover material can be safely moved using available mobile equipment to a location within the Remedial Area or an adjacent Remedial Area (Area of Contamination) that is designated to receive an ET cap.
    - If it is determined that the extent of P4 contaminated material cannot be safely moved as described above, flag the area and discontinue work in that location until EPA approves an alternative means to address the undocumented historic condition.
- If the burning/smoking cannot be contained using these recommend P4 response protocols with on-site personnel and equipment, site personnel will take actions as directed by the FMC Incident Commander. The FMC Incident Commander will make the determination to call in other responders as appropriate (Section 3.2).

Precautions to prevent disturbance of an intact drum or other container/packaging which could potentially contain hazardous substances:

- Construction contractor will train personnel to be alert to indications of encountering buried materials as evidenced by unusual resistance with equipment, unusual or unpleasant odors, evidence of soil staining/spill residues, or visual evidence of buried materials.
- If any of these indicators are observed, construction shall stop work and notify the SSO who, in consultation with the FMC Incident Commander, will review documented disposal practices for the area and assess the known fill materials and determine whether the unusual resistance or other observed condition is consistent with those practices. If

not, the hazard associated with unknown buried materials must be assumed to be high due to the unknown nature of the material, until an assessment establishes the actual nature of threat of hazardous material releases. The Incident Commander will direct site personnel to conduct an evaluation.

- The evaluation may include:
  - Trenching around the disturbed area to determine the extent of the unknown buried material – if resistance/odor/staining/etc. is encountered, move to a location farther away
  - Once the extent of unknown buried material is defined, determine if it is sufficiently small to be excavated and placed in a container (e.g., drum or overpack). If so, place unknown buried material in a drum for later waste characterization and evaluation of waste management alternatives.
  - If suspected ACMs are encountered, the material will be wetted with water sprays and temporarily covered (e.g., with a tarp) to prevent the asbestos from becoming airborne. A certified asbestos contractor will then be contracted to sample the suspected ACMs to confirm if asbestos is present (if necessary), properly package the ACMs, and dispose consistent with 40 CFR § 61.150.

If it is determined that the extent of unknown buried material is not sufficiently small to containerize, flag the area and discontinue work in that location until EPA approves an alternative means to address the undocumented historic condition. If a hazardous substance is released from an intact container as a result of the disturbance, site personnel will take actions as directed by the FMC Incident Commander to abate and contain the release. The FMC Incident Commander will make the determination to call in other responders as appropriate (Section 3.2). If there is any evidence of a release of a hazardous material to the environment (e.g., soil or air), notification to EPA may be required (Section 8 of the ERP).

4.4 NATURAL AND OTHER UNANTICIPATED EVENTS

Potential site emergencies could result from external factors, such as major meteorological, geophysical, or other natural events. These events could result in releases of hazardous waste or hazardous constituents that could threaten human health or the environment. These potential events include incidents related to:

- Tornadoes
- Lightning
- Earthquakes

Flooding is not expected at the FMC OU as the site is located outside the 100-year floodplain of the Portneuf River.

Severe weather, including tornados or thunderstorms, is possible at the site. In the event of a pending thunderstorm, the FMC Incident Commander will assess the storm for a suspension of site activities. Personnel will immediately decontaminate as appropriate and seek shelter. If the storm is fast-moving and personnel may be threatened by completing decontamination procedures, personnel may evacuate the site immediately. This judgment will be made by the FMC Incident Commander.

Earthquakes are possible that could impact the FMC OU remediation activities. In the event of an earthquake, personnel will move away from overhead hazards and structures. Personnel will gather in open areas, if possible, and follow the instructions of the FMC Incident Commander.

4.5 SITE SECURITY

Site Security is addressed in the SWHASP. In addition to the security protocols and practices in that plan, the Project will entail temporary removal of sections of the existing fencing around the RCRA Ponds to integrate the caps and monitoring systems as required by the IRODA. These areas of fencing will be returned to their original state during demobilization activities. Additional security measures, other than the security fence, will be employed around the work areas during the Project.

Security precautions:

- Placing barricades, construction fence, or caution tape around work areas to prevent unauthorized access to the RCRA Pond area.

Response to a security incident:

In the event of a security incident, the SSO shall be notified and will immediately contact the FMC Incident Commander. The FMC Incident Commander will determine the appropriate course of action to address the security violation. Under no circumstances will construction personnel approach an intruder unless there is an immediate threat of loss of life or serious injury. The SSO will prepare a written statement describing the events of the security violation within 24 hours of the incident and submit the statement to the FMC Incident Commander. The report will include the nature of the security violation, approximate time period of the violation, impact of the security violation on the site, and delay of work that may be expected.

4.6 MEDICAL EMERGENCY

Any person who becomes ill or injured in the work areas must be decontaminated to the maximum extent possible. If the injury or illness is minor, full decontamination should be completed and first aid administered prior to transport. If the patient's condition is serious, at least partial decontamination should be completed (i.e., complete disrobing of the victim and redressing in clean coveralls or wrapping in a blanket), unless such action would potentially worsen the condition or result in additional injuries. First aid should be administered while

awaiting an ambulance or paramedics. All injuries and illnesses must immediately be reported to the FMC Incident Commander.

For chemical exposure incidents, the FMC Incident Commander or his/her designated assistant will provide the hospital with MSDS information for the materials the victim has been exposed to, if necessary.

Contractor organizations are responsible for assisting the FMC Incident Commander and other site managers within the scope of site operations. Contractors remain responsible for emergencies related to their site activities or employees, but must immediately notify the FMC Incident Commander and/or SSO in the event of an emergency.

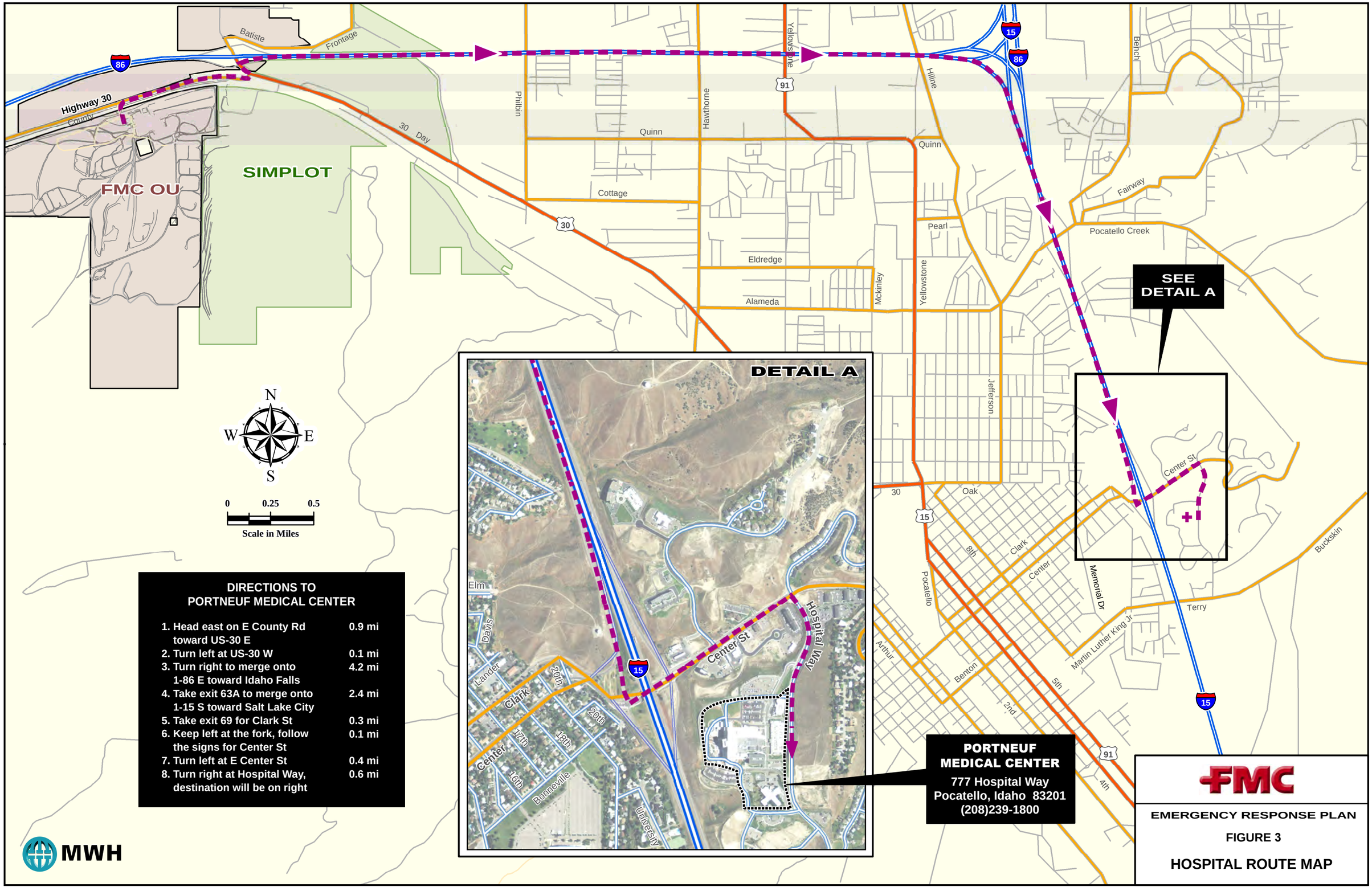
If emergency services are required at the FMC site, 911 will be called. The address and telephone number for the local medical facility is:

Portneuf Medical Center
777 Hospital Way
Pocatello, ID 83201
Main: (208) 239-1800

The recommended route from the project site to the Portneuf Medical Center is shown on Figure 3 and described as follows:

> From the FMC site, travel east along East County Road to US Highway 30. Take immediate right from US Highway 30 to Interstate 86. Travel east on Interstate 86 and take Interstate 15 to the south. Travel south on Interstate 15 to Clark Street, exit 69. Take off-ramp, stay left and follow the signs to Center Street. Turn left on Center Street and travel approximately ½ mile to Hospital Way. Turn right on Hospital Way and travel for approximately ½ mile. Turn right into the Portneuf Medical Center and follow the signs to the Emergency Room.

A copy of the hospital route map will be kept in all site support vehicles, and all site personnel will become familiar with the route and travel time required.



DIRECTIONS TO PORTNEUF MEDICAL CENTER

1. Head east on E County Rd toward US-30 E	0.9 mi
2. Turn left at US-30 W	0.1 mi
3. Turn right to merge onto 1-86 E toward Idaho Falls	4.2 mi
4. Take exit 63A to merge onto 1-15 S toward Salt Lake City	2.4 mi
5. Take exit 69 for Clark St	0.3 mi
6. Keep left at the fork, follow the signs for Center St	0.1 mi
7. Turn left at E Center St	0.4 mi
8. Turn right at Hospital Way, destination will be on right	0.6 mi

PORTNEUF MEDICAL CENTER
777 Hospital Way
Pocatello, Idaho 83201
(208)239-1800

MWH

FMC

EMERGENCY RESPONSE PLAN

FIGURE 3

HOSPITAL ROUTE MAP

DATE: 10 Feb 2014

FILE: I:\projects\FMC\Idaho\FMC_Emergency Response Plan\FIGURES\Fig 4_FMC_Hospital Route Map_Feb 2014.mxd

5.0 EMERGENCY PROCEDURES

This section describes the emergency response procedures that will be implemented when there is an imminent or actual emergency situation related to releases of hazardous wastes or hazardous waste constituents to air, soil, surface water, or groundwater at the FMC site.

The types of incidents that could develop into emergencies during implementation of the Project and that would trigger implementation of this ERP, are identified in Section 4 above. The procedures specified in this section address discovery and basic assessment of such incidents, including initial notification of appropriate personnel; more detailed assessments to determine incident response levels; response actions and notifications; and termination and follow-up actions.

In the event of any action or occurrence during the performance of the soil remedy or groundwater remedy that causes or threatens a release of any waste material from the FMC OU or the overall FMC site that constitutes an emergency situation or may present an immediate threat to public health or welfare or the environment, FMC (or its delegates at the site) will immediately take all appropriate action. FMC (or its delegates at the site) will take these actions in accordance with all applicable provisions of the RD/RA UAO, including, but not limited to the *Site-Wide Health and Safety Plan and the RCRA Facility-Wide Contingency Plan*, in order to prevent, abate, or minimize any such release or threat of release or endangerment caused or threatened by the release.

5.1 INCIDENT DISCOVERY

Upon discovery of an incident by site personnel, including contractor personnel, the FMC Incident Commander will be notified with information characterizing the nature and extent of the incident and will assess whether the incident is an emergency. The following procedures will be followed:

- Personnel at the scene of the incident will secure the area and attempt to determine the source and nature of the incident.
- Personnel will phone the FMC Incident Commander and report their name, location, nature and cause of incident (if known) and any known injuries.
- The FMC Incident Commander, once at the scene, will assume the role described in this ERP. Depending on the nature of the incident, another individual may replace the initial FMC Incident Commander as information concerning the incident develops.

5.2 ALARM WARNING SYSTEMS

The local emergency response organizations will be notified prior to initiation of remedial action field work activities, as described in Section 3.2. They will be informed of the nature of the

work, the hazards, and the potential emergencies that may result. They will also be informed of the site's location and hours of work. Because of the relatively remote location of the site, all site personnel are required to be capable of summoning emergency assistance if required and will have cell phones during working hours. The FMC Incident Commander will be the primary contact for any emergency notification.

Notification of site personnel regarding emergency actions on the site will be accomplished primarily through voice communication. Because high noise levels may interfere with voice communication, secondary communications will be utilized whenever an emergency situation arises. These secondary communications will include hand/body signals that will be discussed during initial training for all site workers and at least monthly with all site workers at a daily safety briefing. For those workers in areas where high noise levels are expected on a routine basis, e.g., at or near the slag screening operations, these visual signals will be discussed at least weekly at a daily safety briefing.

Visual signals will include:

- Grip team member's wrist or place both hands around waist: "Leave site immediately; no debate!"
- Hand gripping throat: "Can't breathe."
- Thumbs up: "OK, I'm all right; I understand."
- Thumbs down: "No, negative."

6.0 EMERGENCY EQUIPMENT

Onsite emergency response equipment will include cell phones (for internal communications), spill control equipment, and firefighting equipment. This equipment will be supplemented by additional equipment and services provided by the remedial action contractor. The remedial action contractor will have additional spill and incident response capacity and associated equipment.

Emergency equipment available at the site includes the following:

6.1 FIRE FIGHTING EQUIPMENT

Water Truck. One unit is located at the former Training Center on the site. This is a mobile source of water for firefighting or decontamination. Typically this unit is used for dust suppression on roadways. This tanker truck has a 2,500 gallon tank and is equipped with a fire hose and road sprays. It is for use in non-winter months only.

Portable Fire Extinguishers. A portable fire extinguisher is located at the Calciner Pond 90-day generator accumulation area (GAA) and near any operating gas extraction and treatment system (GES). Additional portable fire extinguishers will be provided by the remedial action contractor in all vehicles and equipment used for earthwork activities.

6.2 SPILL CONTROL EQUIPMENT

Skid Loader. One unit is located at the site, at the former Training Center. This unit can be used for loading, transporting, and placement of spill control equipment or loose materials such as soil, slag, or silica for use in diking, and for cleaning up contaminated soil or solid materials.

Wheeled Loader. One unit is located at the site. The unit can be used for loading and transporting large amounts of soil, slag or silica for use in diking and cleanup.

Railcar Mover. One unit is located at the site. This is a mobile loader (minus bucket) that can be used to move railcars along tracks within the FMC site.

Spill Control Kit. The Calciner Pond 90-day GAA has a spill control kit that includes a 50-pound bag of absorbent material, a square nose shovel, a push broom with handle, a small broom, a dustpan, a 5-gallon bucket, a pair of goggles, and a pair of chemical gloves. Additional spill control kits will be provided and located at strategic locations by the remedial action contractor prior to initiation of remedial actions.

6.3 DECONTAMINATION EQUIPMENT

Water Truck. This is the same unit listed above under firefighting equipment. Other decontamination equipment to address the needs of the remedial action will be provided by the remedial action contractor prior to the initiation of site activities.

7.0 INCIDENT COMMAND/MANAGEMENT

7.1 EVENTS NOT REQUIRING MUSTER OR EVACUATION

Personnel in the location of the event will provide initial incident response and site control, and will be responsible for activating the Emergency Response Plan by contacting the FMC Incident Commander. The FMC Incident Commander will decide subsequent actions and response. The person that contacted the FMC Incident Commander will act as the temporary commander on the scene to ensure the workers are safe and the scene is preserved for response and investigation. The FMC Incident Commander will also determine if external, local emergency responders are required.

7.2 EVENTS REQUIRING MUSTER OR EVACUATION

7.2.1 Muster

Muster areas will be established by the FMC Incident Commander prior to initiation of site grading activities, to be used in the event of localized emergencies that do not require immediate evacuation. During emergencies these muster areas will be the meeting place for all personnel, where roll will be taken and next steps determined after immediate response actions have been made. Personnel will be advised of these muster areas at the daily safety briefing. The FMC Incident Commander will announce by radio and/or cell phone when a Muster is required. Examples of situations where this may be done include fire, landslide/slope failure, and earthquake.

7.2.2 Fire Muster

If the Muster is due to a fire emergency, the following will be considered prior to mustering. The prevailing wind in the vicinity of the FMC site is consistently from the south-southeast. A reversal of the prevailing southeast wind typically occurs between the hours of 12 noon and 6:00 pm, when winds can occur from the north, northwest, west, and southwest. If Muster is necessary, the upwind Muster area will be used as a gathering place where the FMC Incident Commander or their designee can account for all site personnel and visitors.

7.2.3 Evacuation

Should the FMC Incident Commander determine that all personnel are to be evacuated from the site all field personnel will evacuate to the main gate, and then proceed as indicated by the FMC Incident Commander. In the event that an evacuation is required, the following procedures will be followed:

- All personnel will be notified by cell phone to evacuate the affected area.

- All personnel will immediately proceed to the assembly checkpoint (Main Gate area) following either the Primary or Alternate evacuation routes as shown on Figure 4 and described below:

From the Calciner Pond Area and Eastern portions of the site:

1. Primary Evacuation Route: Drive or walk northerly (downhill) to the Main Gate.
2. Alternate Evacuation Route: Drive or walk south (uphill) proceeding around the Slag Pile and thence to the Main Gate.

From the RCRA Pond Area and Western portions of the site:

1. Primary Evacuation Route: The main gates are located along the north RCRA fence area as indicated on Figure 4. Drive or walk north to the north site road (staying upwind of any visible emissions), then proceed easterly along the road to the emergency check point area by the Main Gate.
2. Alternate Evacuation Route: Drive or walk south to the south site road, then head easterly towards the slag pile (staying upwind of any visible emissions) and proceed to the emergency check point area by the Main Gate. Alternate safety areas may be designated by the FMC Incident Commander if conditions are such that the safety areas or access to the safety areas is not safe. The perimeter road around the plant area and the main access road on the west side of the site will be used as the main evacuation routes. The west site access road may be used as an alternate evacuation route from the west side of the site, if necessary. Personnel will remain at the safety area(s) until the reentry alarm is sounded or an authorized individual provides further instructions.

7.3 POST EMERGENCY PROCEDURES

Post-emergency procedures are designed to prevent a recurrence of the incident; to clean up and dispose of residue; to decontaminate equipment; to provide for personnel debriefing; and to modify the ERP, as needed. These procedures are described below.

7.3.1 Prevention of Recurrence

The FMC Incident Commander will take all necessary steps to reduce the likelihood of a secondary release, fire, or explosion after an incident. The procedures that will be carried out include:

- Inspection for any leaks or cracks in drums used to containerize materials generated during emergency actions.
- Isolation of all collected waste materials.
- Determination that all fires have been put out.

- Determination that all sources of ignition or smoking that may have caused or contributed to the incident have been eliminated or are under control.
- Determination that all spilled material is contained.
- Segregation of all incompatible materials collected during the emergency response.

The FMC Incident Commander or designee will evaluate affected areas of the site to make the following determinations:

- No waste that may be incompatible with the released material is located, stored, or disposed of until cleanup procedures are completed.
- All emergency equipment listed in the ERP is cleaned and fit for its intended use prior to reuse.
- The FMC provides notice to the appropriate federal, state, and local authorities that the site is in compliance with the above two items before operations in the affected area(s) are resumed.

7.3.2 Emergency Completion

The FMC Incident Commander will use the following criteria, as appropriate, to determine that an emergency response has been successfully completed:

- ***Fire or Smoke***. The fire has been extinguished and all sources of fire or smoking or causes of potential re-ignition have been removed or brought under control.
- ***Spill or Leaks***. All the spilled or leaked material and any contaminated soil, water, or other material has been removed and contained.

After an emergency, the FMC Incident Commander will direct the treatment, storage, or disposal of recovered waste, contaminated soil, surface water, or groundwater and any other material that results from a release, fire, or explosion at the site. These materials will be handled in accordance with the Transportation and Off-Site Disposal Plan.

7.3.3 Equipment Decontamination and Maintenance

After cleanup procedures are completed, all equipment used during the cleanup will be decontaminated, as necessary, by being thoroughly washed. After being washed, the equipment will be rinsed twice. All decontamination wash waters and rinsates will be managed in accordance with applicable federal, state and local requirements.

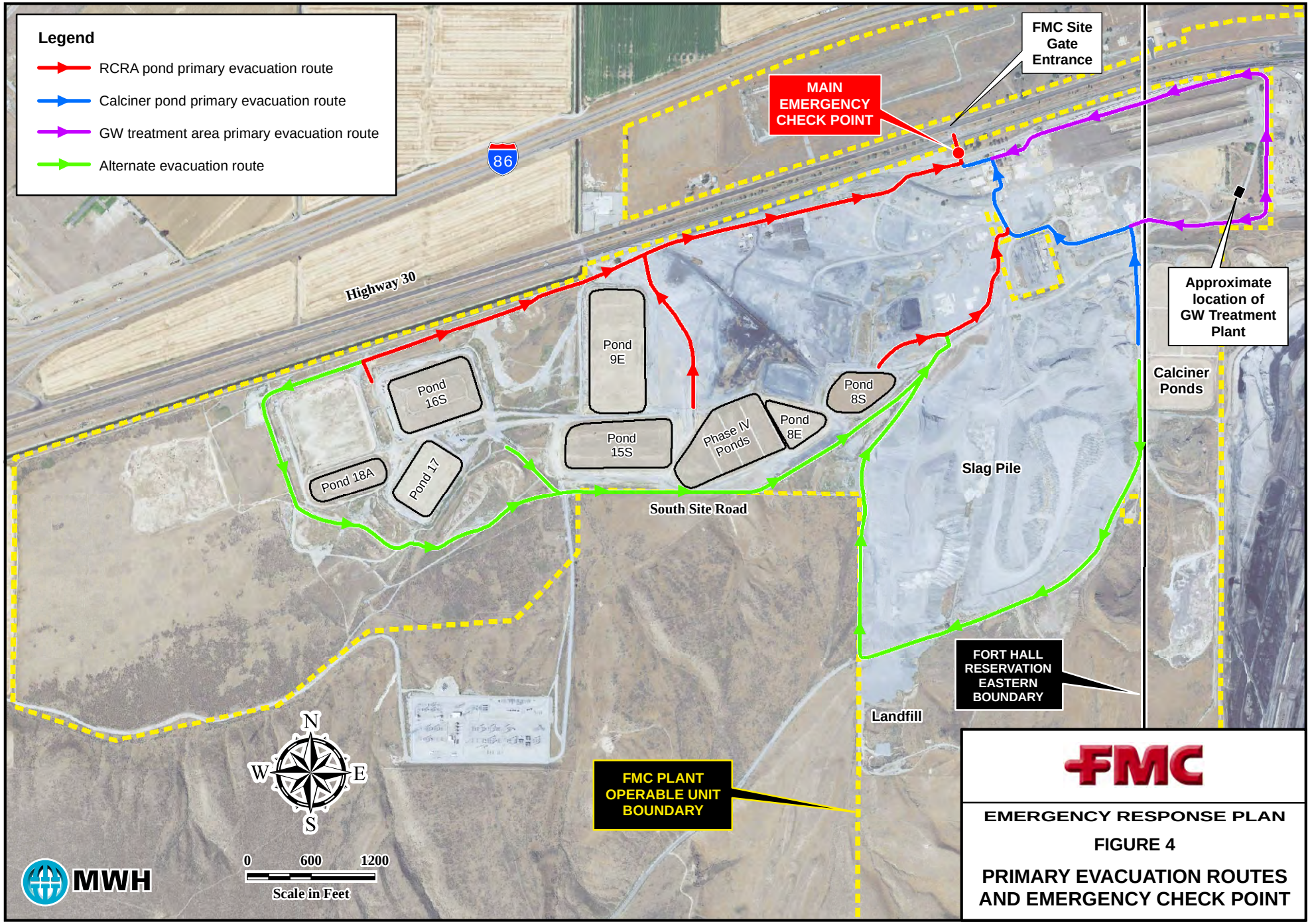
Site personnel involved in cleanup activities will be required to remove any contaminated clothing. If personnel decontamination is required, these activities will be conducted in accordance with the Site-wide Health and Safety Plan.

7.3.4 Personnel Debriefing

The FMC Incident Commander will conduct debriefings of personnel and/or governmental authorities to assess the response that was conducted and identify opportunities to improve preparedness and prevention activities. Topics for a typical debriefing may include the following:

- What was effective in the response action?
- What was not effective in the response action?
- What changes are needed in the response action to be more effective?
- What other lessons were learned?

Based on this review, the ERP will be updated as necessary.


Legend
RCRA pond primary evacuation route
Calciner pond primary evacuation route
GW treatment area primary evacuation route
Alternate evacuation route
FMC Site Gate Entrance
MAIN EMERGENCY CHECK POINT
86
Highway 30
Approximate location of GW Treatment Plant
Calciner Ponds
Pond 9E
Pond 16S
Pond 15S
Pond 17
Pond 18A
Phase IV Ponds
Pond 8E
Pond 8S
Slag Pile
South Site Road
FORT HALL RESERVATION EASTERN BOUNDARY
Landfill
FMC PLANT OPERABLE UNIT BOUNDARY
N
W
E
S
0 600 1200
Scale in Feet
MWH
FMC
EMERGENCY RESPONSE PLAN
FIGURE 4
PRIMARY EVACUATION ROUTES AND EMERGENCY CHECK POINT

8.0 INCIDENT REPORTING

Releases of oil or hazardous substances above their reportable quantities:

> Paragraph 57 of the UAO requires notification in the event of a release of hazardous substances requiring reporting under Section 103 of CERCLA, 42 U.S.C. § 9603, or Section 304 of the Emergency Planning and Community Right-to-know Act ("EPCRA"), 42 U.S.C. § 11004. Regulations implementing these status are found at 40 CFR §302.6 or 40 CFR §355.40(a), and should such a release occur the FMC Incident Commander will immediately notify the FMC Project Coordinator, or alternate, who will responsible for making the notifications required by Paragraph 57.

The regulations at 40 CFR §302.6 or 40 CFR §355.40(a) require notification by telephone to the National Response Center, the State Emergency Response Commission and the Local Emergency Planning Committee, and may include a written follow up as soon as practicable.

The initial report will include:

- Name, address, and telephone number of the FMC Idaho LLC site.
- Date, time, and type of incident.
- Name and quantity of material(s) involved.
- The extent of injuries, if any.
- An assessment of actual or potential hazards to human health or the environment, where applicable.

Paragraph 57 of the UAO requires reporting by telephone within 24 hours of the onset of such event to the EPA Project Coordinator, as well as the Tribes and State to ensure safety to the maximum extent possible. Paragraph 57 requires a written follow up within 20 days of the onset of such an event and within 30 days after the conclusion of such an event, a written report setting forth actions taken in response thereto.

Action or occurrence during the Project that causes or threatens a release that constitutes an emergency or may present an immediate threat to public health or welfare or the environment:

Paragraph 76 requires FMC to take all appropriate action in such an event, and FMC has prepared this ERP to describe those actions which will be taken to prevent and respond to emergencies. Additionally, should an Action or occurrence during the Project that causes or threatens a release that constitutes an emergency or may present an immediate threat to public health or welfare or the environment occur, Paragraph 77of the UAO requires immediate notification to the EPA Project Coordinator and the Regional Duty officer, Emergency Management Program, EPA Region X and the National Response Center for releases of oil or hazardous substances above their reportable quantity, as well as the Tribes and State of the

incident or conditions to ensure safety to the maximum extent. Reporting pursuant to Paragraph 57 appears to fulfill this requirement.

Paragraph 78 requires a written report to EPA within 7 days after an action or occurrence during the Project that causes or threatens a release that constitutes an emergency or may present an immediate threat to public health or welfare or the environment.

Phone numbers and addresses which may be required for notifications required above are listed below:

- National Response Center (NRC) (800-424-8802) or EPA Regional Duty Officer (206-553-1263). When reporting the incident to the NRC, the person reporting the incident will obtain and record the NRC's reference number for the report.
- The EPA Project Coordinator for the RDRA UAO is Kevin Rochlin in Seattle, Washington. His office phone is (206) 553-2106.
- If the EPA Project Coordinator is not available, contact the EPA Regional Duty Officer (Seattle, Washington) at 206-553-1263.
- Idaho Department of Environmental Quality contact is Bruce Olenick in Pocatello, Idaho. His office phone is: (208) 236-6160.
- Shoshone-Bannock Tribes contact is Kelly Wright in Fort Hall, Idaho. His office phone is: (208) 236-1049.

9.0 AMENDING THE RESPONSE PLAN

FMC will maintain copies of the ERP on-site and will submit copies to appropriate local and state emergency response organizations that may be called upon to provide emergency services. The ERP is subject to review and immediate update in coordination with the EPA consistent with the RD/RA UAO, under the following circumstances:

- Additional remedial components are installed.
- Applicable regulations change.
- The plan fails in an emergency.
- Changes to the plan are warranted, based on post-emergency debriefing.
- The Incident Commander changes.
- Changes to the available emergency equipment.

10.0 REFERENCES

EPA, 2012. Interim Amendment to the Record of Decision for the EMF Superfund Site - FMC Operable Unit - Pocatello, Idaho, September 27, 2012.

EPA, 2013. Unilateral Administrative Order for Remedial Design and Remedial Action, EPA Docket No. CERCLA-10-2013-0116, June 10, 2013.

FMC, 2013. Site-Wide Health and Safety Plan, July 2013; *RCRA Pond Area Work Rules Updated 12/17/13* (or most recent revision).

MWH, 2009. Supplemental Remedial Investigation Report for the FMC Plant Operable Unit, May 2009.

ERP APPENDIX A

Spill Prevention, Control, and Countermeasures Plan

Spill Prevention, Control and Countermeasures Plan

- ***FMC Operable Unit of the Eastern Michaud Flats Superfund Site Remedial Action Activities***

- ***Pocatello, Idaho***

July 10, 2014

Revision October 24, 2014

Prepared for:

FMC Corporation

Prepared by:

CB&I

6830 S. Fiddler's Green Circle, Suite 310

Greenwood Village, CO 80111

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LIST OF ACRONYMS

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	contaminant of concern
EMF	Eastern Michaud Flats
EPA	United States Environmental Protection Agency
FMC	FMC Corporation
FMC OU	FMC Operable Unit
IROD	Interim Record of Decision Amendment
MSDS	Material Safety Data Sheet
MWH	MWH Americas, Inc.
OU	Operable Unit
P4	elemental phosphorus
PE	Professional Engineer
PPE	personal protective equipment
RD/RA	Remedial Design/Remedial Action
ROD	Record of Decision
RA	Remediation Area
SPCC	Spill Prevention, Control, and Countermeasure
SUA	Southern Undeveloped Area
UAO	Unilateral Administrative Order
USEPA	United States Environmental Protection Agency
WUA	Western Undeveloped Area

1.0 INTRODUCTION

This *Spill Prevention, Control and Countermeasure* (SPCC) *Plan* has been prepared on behalf of FMC Corporation (FMC) and presents the planned procedures to prevent and respond to oil and fuel spills during soil remedial action activities at the FMC Operable Unit (FMC OU) of the Eastern Michaud Flats (EMF) Superfund Site. The FMC OU is located in Power County in Idaho, approximately 2.5 miles northwest of Pocatello. The EMF Site includes two adjacent production facilities, the former FMC Corporation elemental phosphorus (P4) processing plant that ceased operation in 2001 and a phosphate fertilizer processing facility currently operated by the J.R. Simplot Company. The EMF Site is shown FMC OU Remedial Design 30% Design Submittal March 2014 Drawing #4 (attached) and encompasses both the FMC and Simplot plants and surrounding areas (Off-Plant OU) affected by releases from these facilities.

This SPCC Plan is one of many work elements being conducted pursuant to the remedial actions set forth in the Interim Amendment to the Record of Decision for the EMF Superfund Site FMC Operable Unit (IROD; Environmental Protection Agency [EPA], 2012) and a Remedial Design/Remedial Action (RD/RA) Unilateral Administrative Order (UAO, EPA, 2013) issued by EPA on June 10, 2013 which became effective on June 20, 2013. This SPCC Plan has been prepared for use during the implementation of the soil components (initial site grading and cover construction) of the final remedy. The Selected Remedy by the EPA includes capping or covering and in-place management of soil and fill material at the FMC Operable Unit (OU), removal and treatment of residual wastes in storm drain piping and storm water management (Phase I) and installation of a groundwater extraction and treatment system (Phase II). However, this plan only covers Phase I, Task 1 of the soil remedial action (site wide grading and storm water management systems). Phase I, Task 2 of the soil remedial action (soil cover placement) and Phase II groundwater extraction and treatment will be addressed later.

As specified in Section 5.4.2 of the *Final Remedial Design Work Plan*, this SPCC Plan is a required component of the *Emergency Response Plan*.

This SPCC Plan may be updated, modified, or amended during the progression of the remedial action based upon new information, actual oil and fuel usage, storage, and procedures utilized during the FMC OU soil remedial actions, changes in regulations, or improved management practices. All revisions to this SPCC Plan will comply with all applicable regulatory requirements and will be submitted to FMC for review and approval in accordance with the RD/RA UAO.

1.1 PROJECT LOCATION

The EMF Superfund Site includes two adjacent production facilities, the former FMC Corporation P4 processing plant that ceased operation in 2001 and a phosphate fertilizer processing facility currently operated by the J.R. Simplot Company. The EMF Site encompasses

both the FMC and Simplot plants and surrounding areas affected by releases from these facilities. The FMC OU of the EMF Site, consisting of the FMC Plant Site and other FMC-owned properties at the EMF Site, is on privately-owned fee land, most of which is located within the exterior boundaries of the Fort Hall Indian Reservation. The FMC OU occupies approximately 1,450 acres in Power County, Idaho approximately 2.5 miles northwest of the city of Pocatello and consists of the FMC Plant Site (i.e., the former operating facility located south of Highway 30), the Southern and Western Undeveloped Areas (SUA and WUA) that are also located south of Highway 30, and FMC-owned Northern Properties located north of Highway 30. The easternmost portions of the FMC OU are located outside the reservation boundary.

1.2 PROJECT DESCRIPTION

The selected remedy for the FMC OU addresses metals, radionuclides, and other contaminants of concern (COCs) identified in soils, fill, and groundwater at the FMC OU. Additional details of the selected remedy can be found in the *Final Remedial Design Work Plan* for the FMC OU (MWH, 2013). Components of the selected remedy for soil remediation are addressed in this SPCC Plan and include the following:

- Initial site grading to establish site wide storm water management systems and prepare for construction of gamma and evapotranspiration (ET) caps.
- Placement of ET caps over areas that contain non-slag fill (such as P4, phossy solids, precipitator solids, kiln scrubber solids, industrial waste water sediments, calciner pond solids, calcined ore, and plant/construction landfill debris) to: (1) prevent migration of contaminants to groundwater, preventing the infiltration of rainwater/snowmelt, and (2) prevent direct contact with contaminants by current and or future workers. ET caps will be placed over the following remediation areas (RAs): RA-B, RA-C, RA-D, RA-E, RA-F1, RA-F2, RA-H, and RA-K; This is part of a future phase of construction.
- Excavate contaminated soil from Parcel 3 of FMC's Northern Properties, also known as RA-J, and consolidate that soil into the subgrade of the capped areas to prevent exposure of residents and future workers to elevated levels of radionuclides in surface soil; and,
- Clean underground reinforced concrete pipes that may contain P4 and radionuclides to prevent exposure to potential future workers.
- Placement of approximately 12 inches of soil cover (gamma cap) over: (1) areas containing slag fill, (2) ore stockpiles, and (3) the former Bannock Paving areas to prevent gamma radiation and fugitive dust exposure to potential future workers. Gamma caps will be placed over RA-A, RA-A1, RA-F, and RA-G.

1.3 ORGANIZATION OF THE SPCC PLAN

The remainder of this SPCC Plan is comprised of the following sections:

- Section 2.0 describes SPCC regulatory requirements.

- Section 3.0 presents the general site information.

- Section 4.0 presents oil and fuel storage information, to the extent known at this point.
- Section 5.0 presents the release prevention plans and procedures.
- Section 6.0 presents the release response plans and procedures.

2.0 REGULATORY REQUIREMENTS

A non-transportation related facility is subject to SPCC regulations if the aggregate aboveground oil-storage capacity of the facility exceeds 1,320 gallons (excluding containers and oil-filled equipment with less than 55 gallons capacity), or if the aggregate underground oil-storage capacity of the facility exceeds 42,000 gallons (excluding those tanks that are currently subject to all of the technical requirements of 40 CFR Part 280 or all of the technical requirements of state programs approved under 40 CFR Part 281); and if, due to its location, the facility could reasonably be expected to discharge oil into or upon the navigable waters or adjoining shorelines of the United States.

During the implementation of the soil remedy at the FMC OU, it is anticipated that the aggregate aboveground oil and fuel storage capacity during construction activities will exceed 1,320 gallons. There will be no underground storage of oil or fuel. The FMC OU is a zero-discharge facility (there are no discharges of process waters or storm water from the site). Therefore, there is no reasonable expectation that any oil spills or other discharges would enter waters of the United States. However, as required under Section IX.30.c.7.bb.(iii) of the RD/RA UAO, CB&I has prepared this preliminary SPCC Plan. Consistent with the requirements of 40 CFR Part 112, this SPCC Plan has been prepared to document the oil/fuel storage containers and equipment at the facility and outline procedures to prevent and, if necessary, respond to a discharge of oil to waters of the United States. CB&I's total volume of oil/fuel storage is 14,000 gallons. The locations of oil/fuel storage tanks will be near the office trailers as depicted in Drawing 42 and Figure 1.

2.1 FACILITY RESPONSE PLAN [40 CFR §112.20]

In accordance with 40 CFR §112.20, any spills or other discharges of oil at the FMC OU could not, because of its location and the capacity of the units where oil is and will be stored at the site, reasonably be expected to cause substantial harm to the environment, as defined in 40 CFR 112.20(f)(1), by discharging oil or petroleum-based materials into or upon waters of the United States. Therefore, no response plan is required. The Substantial Harm Criteria certification form required by 40 CFR §112.20(e) is presented as Appendix A.

2.2 SPCC PLAN AVAILABILITY, REVIEW, AND AMENDMENT

2.2.1 Availability [40 CFR §112.3(e)]

A complete copy of this SPCC Plan will be maintained at the FMC OU for on-site review by EPA during normal working hours.

2.2.2 Five-Year Review [40 CFR §112.5(b)]

Per 40 CFR §112.5(b), an SPCC Plan must be reviewed at least once every five years. Due to the nature of operations at the FMC OU, the SPCC Plan will be reviewed on an annual basis, prior to beginning construction operations for the year. The SPCC Plan will be amended following this review if any physical changes are identified at the site that will materially affect the potential of discharge from the site (technical amendment) or if a more effective prevention and control technology is available that has been proven in the field and is appropriate for the site. A record of reviews will be maintained on the Review Statement, found and filed in Appendix B. SPCC Plan amendments will be implemented as soon as possible, but no later than six months following amendment of the SPCC Plan.

2.2.3 Facility Modifications [40 CFR §112.5(a)]

Because the SPCC Plan must reflect current conditions at the FMC OU, it will be amended as soon as possible, but no later than six months, after any change in facility design, construction, operation, maintenance, or oil storage condition (including a change in container location or contents) that materially affects its potential for a discharge of oil (technical amendment). Facility diagrams will be updated, as necessary, to reflect the current location and contents of regulated containers of oil. SPCC Plan amendments will be implemented as soon as possible, but no later than six months following amendment of the SPCC Plan. A record of amendments will be maintained on the SPCC Change Record, found and filed in Appendix C.

2.2.4 SPCC Certification [40 CFR §112.3(d) and §112.5(c)]

This SPCC Plan will be certified by a Professional Engineer (PE) as required by 40 CFR §112.3(d). Any technical amendments to the SPCC Plan will be also be certified by a PE as required by 40 CFR §112.5(c). Examples of technical amendments include, but are not limited to, installation, removal, replacement, reconstruction, or relocation of oil storage containers or piping systems; construction or demolition that might alter secondary containment structures; changes in product or service; or addition/deletion of standard operating or maintenance procedures related to discharge prevention measures. PE certification is not required for non-technical amendments, which include, but are not limited to, name or telephone number changes, or non-technical text changes. The PE certification will be included as Appendix G of this SPCC Plan.

3.0 GENERAL SITE INFORMATION

3.1 SITE LOCATION AND DRAINAGE [40 CFR §112.7(a)(3)]

Name: FMC OU Site

Location: 2 miles west of Pocatello, ID on Highway 30

Owner: FMC Corporation
1735 Market Street
Philadelphia, PA 19103

Site Contact: Marguerite Carpenter
(215) 299-6210

For the FMC OU location and description, see Section 1.1 above. General drainage on the FMC OU is shown on FMC OU Remedial Design 30% Design Submittal March 2014 Drawing #44 (attached). Note that drainage is totally contained within the FMC OU.

3.2 SITE LAYOUT AND OPERATION [40 CFR §112.7(a)(3)]

The FMC OU occupies approximately 1,450 acres with the majority of the site covered with process fill materials (primarily slag, ore materials, coke and coke dust, concrete, and silica). The West Undeveloped Area (WUA) and the South Undeveloped Area (SUA) do not contain process fill materials but consist of native soils and outcrops. There is only one significant building at the FMC OU, the FMC Training Center, located in the northeastern portion of the site. Operations during implementation of the FMC OU soil remedy will consist of earth-moving construction associated with subgrade preparation and capping. Large equipment such as dozers, excavator, graders, and haul trucks will be utilized during the implementation of the soil remedy.

For operation and maintenance of this equipment, fuel tanks containing diesel and/or gasoline fuels will be stored at the FMC OU for the duration of the soil remedy implementation. CB&I's actual total volume of oil/fuel storage is 14,000 gallons in 3 separate fuel storage tanks. The 3 fuel storage tanks will be positioned 50 ft. from one end of the crew/break trailer to maintain a 50 ft. "No Smoking" zone from the fuel The fuel storage tanks are spaced approximately 4 ft. and 11 ft. apart to allow all three to be used at once.

4.0 FACILITY OIL STORAGE

The purpose of this section is to identify regulated oil storage containers and oil-containing equipment located at the FMC OU and provide a general description of spill containment and control.

Oil storage containers are subject to the specific containment and other requirements detailed in 40 CFR §112.8(c). CB&I plans to use single walled fuel storage tanks during this project. The fuel storage tanks will be installed in secondary containment structures for the fuel storage tanks. The fuel storage tank supplier will supply the secondary containment structures. The storage tanks secondary containment will have sufficient volume to handle the release of the tank plus 10 % and precipitation from a 24 hour, 25 year storm event. In accordance with 40 CFR §112.7(b), predictions of the direction, rate of flow, and total quantity of material that could be discharged at the FMC OU are also discussed in Section 4.1. Per regulatory guidance, Section 4.1 addresses each type of failure resulting in a reasonable potential for a discharge of oil to navigable waters of the United States or adjoining shorelines, or other protected areas, as described in 40 CFR §112.1(b).

Fuel storage areas are either staffed during normal hours of operation, or are regularly occupied by site personnel, enabling timely discovery of potential oil discharges should they occur. During off-hours, the fuel pumps will be secured with locks.

4.1 TANKS AND PORTABLE CONTAINERS [40 CFR §§112.7(a)(3)(i)-(iii), (c), and (g); 40 CFR §§112.8(b), (c)(2), (c)(3), (c)(8), (c)(9), and (d)(2)]

4.1.1 Fuel Tank Storage

The fuel storage tank(s) will be located near the center of RA-A (see Figure 1) which is the general area planned for the office trailers. Figure 1 shows the proposed locations and volumes of fuel storage to be used during implementation of the soil remedy. To facilitate capping of the FMC OU, fuel storage tanks may be moved during the capping activities. All changes to the storage location or volumes will constitute a technical amendment requiring amendment of the SPCC Plan and re-certification per Sections 2.2.3 and 2.2.4, respectively.

Storage tanks will be filled by a commercial fuel vendor using their delivery trucks. The 2,000 gal. storage tank dimensions will be 7 ft. diameter x 85 inches long approximately 2,040 gallons. The 10,000 gal. storage tank dimensions will be 96 inches diameter x 318 inches long approximately 9,965 gallons. The storage tanks will have secondary containment. The fuel storage tank supplier will supply the secondary containment structures. The dimensions of the 2,000 gal. containment structures is 11 ft. x 8 ft. x 43 inches which has a storage capacity of approximately 2,359 gallons. The containment structure will have storage capacity for approximately 115% of the fuel storage tank. The dimensions of the 10,000 gal. containment structures is 35.5 ft. x 8.5 ft. x 5 ft. which has a storage capacity of approximately 11,286

gallons. The containment structure will have storage capacity for approximately 113% of the fuel storage tank.

The maximum catastrophic release would be a total failure of the largest fueling tank. As all tanks will be provided with secondary containment, including piping/hoses, such a spill should be totally contained within the secondary containment. If a spill should breach the secondary containment, no surface waters would be threatened due to the distance to surface waters and the fact that the FMC OU is a zero discharge facility (there are no direct pathways to surface waters). Secondary containment volume calculations are provided in Appendix D. The fuel tank pumps will be locked at night and on off days to defer acts of vandalism and theft.

The secondary containment will allow for accumulation of precipitation The accumulated precipitation will be pumped from the containment area and discharged to the ground surface adjacent to the containment area once inspection confirms the accumulated precipitation is fuel/oil-free. Prior to discharge, site personnel will inspect accumulated precipitation within the containment area to ensure no oil will be discharged (as evidenced by visible oil sheen). If oil is discovered, it will be recovered immediately using a hydrophobic boom or other appropriate mitigation materials. The discharge will be monitored to confirm no oil is discharged. CB&I will record precipitation discharges and provide the records to FMC. Construction personnel regularly work near the containment area permitting timely discovery of a release. At a minimum, the containment area will be inspected once per month and after a significant rain event (greater than 0.25 inches in a 24-hour period).

For overfill prevention during tank loading, the liquid level of the diesel tank will either be visually monitored using a level gauge or the tank may be equipped with an overfill level alarm. The tank level observer is in constant contact with the tank truck operator to ensure prompt cessation of transfer when the diesel tank nears capacity.

4.1.2 55-Gallon Drums or Larger Portable Containers

55-gallon drums or other larger containers storing fuels, oils, used oils, oil filters, or fuel/oil spill residues may be stored at the FMC OU during implementation of the soil remedy. The number and volume of these containers is not known at this time, but will be added to the SPCC Plan once this information is made available. While 55-gallon drums of fuels, oils, used oils, oil filters, or fuel/oil spill residues are being stored on-site, they will be stored on containment pallets. The maximum catastrophic release would be a total failure of a single portable container. As all containers will be provided with secondary containment, such a spill should be totally contained within the secondary containment. If a spill should breach the secondary containment, no surface waters would be threatened due to the distance to surface waters and the fact that the FMC is a zero-discharge facility (there are no direct pathways to surface waters).

4.1.3 Mobile Equipment Fueling

Mobile equipment may be fueled at the fuel storage tank area or by means of a mobile refueling tank truck. While fueling at the fuel storage tank area, mobile equipment will be parked and fueled using spill pans at the fill port to catch any drippage. The fueling operator will remain at the equipment during fueling to ensure that overtopping of the fuel tanks does not occur and to observe/report any release of fuel to the ground surface.

A mobile refueling tank truck will be used to fuel mobile equipment on-location, the mobile refueling tank truck has a maximum compartment capacity of approximately 1,000 gallons. A 50-to 60 gpm pump is used to transfer fuel to construction equipment. The fueling truck is equipped with a 120 gallon motor oil tank, an 85 gallon hydraulic oil tank and an 85 gallon anti-freeze tank. The fueling operator will remain at the equipment during fueling to ensure that overtopping of the fuel tanks does not occur and to observe/report any release of fuel to the ground surface. The maximum possible release would be a catastrophic failure of the tank truck resulting in an instantaneous release of up to 1,000 gallons of fuel, 205 gallons of motor and hydraulic oil and 85 gallons of anti-freeze. In the event of a leak during pumping, or equipment fuel tank overfill, 60 gpm would be released up to a maximum of 1,000 gallons of fuel. Rupture of a construction equipment fuel tank would result in a release of up to 100 gallons. In the event that such a release during mobile, on-location fueling should occur, the spill should be relatively localized. No surface waters would be threatened due to the distance to surface waters and the fact that the FMC OU is a zero discharge facility (there are no direct pathways to surface waters). The release would then be cleaned up by removing and containerizing all contaminated soils.

5.0 RELEASE PREVENTION PLAN

This section provides descriptions of preventive measures and procedures that will be incorporated into the FMC OU soil remedial action. Oil container-specific preventive measures such as secondary containment, transfer pump security, and overfill prevention are addressed in Section 4.0.

5.1 SITE SECURITY [40 CFR §112.7(g)]

A chain link fence with automated entry gate already exists around the FMC OU. The existing gate will be utilized to control access to the site work areas. All personnel will be required to read and sign the Site-Wide Health and Safety Plan, and personnel entering the construction area will be required to wear the appropriate personal protective equipment (PPE).

In addition, the fuel storage tanks pumps at the FMC OU will be locked during non-operating hours and site personnel will regularly monitor the area. Site lighting is adequate to illuminate the Site to deter vandalism and rapidly determine if an oil discharge has occurred.

5.2 PERSONNEL TRAINING [40 CFR §§112.7(f)(1) and (3)]

5.2.1 General Training

Oil/fuel-handling personnel at the FMC OU will receive the following minimum training prior to assignment of job responsibilities:

- Operation and maintenance of equipment to prevent oil discharges.
- Oil discharge procedure protocols.
- Applicable pollution control laws, rules, and regulations.
- The contents of the *Emergency Response Plan.*
- The contents of the *Site-Wide Health and Safety Plan*.
- The contents of this SPCC Plan.

All applicable training is provided to appropriate personnel prior to work at the FMC OU. Annual training will be provided to all oil/fuel-handling site personnel and will also cover the above-listed elements. Personnel conducting monthly and annual tank inspections will be trained on tank inspection procedures. Site personnel will also include spill prevention and mitigation discussions during daily job briefings, as appropriate.

5.2.2 Training Records

Documentation of site personnel training and discharge prevention briefings is maintained for a minimum of three years as part of the SPCC record. Specifically, employee training records and discharge prevention briefing logs will be maintained in the Site field office.

5.3 RELEASE PREVENTION PERSONNEL [40 CFR §112.7(f)(2)]

The Project Manager is accountable for oil spill prevention as prescribed in this SPCC Plan.

5.4 RELEASE RESPONSE EQUIPMENT [40 CFR §112.7(a)(3)(iii)]

Spill mitigation materials (spill kits) will be maintained wherever fuel and/or oil is stored in tanks, portable tanks, or other containers and on the mobile fueling tank truck. Spill kits will include the following materials:

- Oil absorbent pads, pillows, and/or socks;
- Hazmat disposal bags;
- Oil resistant gloves and coveralls, safety glasses;
- Non-sparking shovel or broom; and
- Empty drums for spill cleanup containment.

In addition, current onsite emergency response equipment includes mobile radios (for internal communications), spill control equipment, and firefighting equipment. CB&I will provide

additional equipment and services including spill kits, drums, oil sorbent materials and fire extinguishers.

Other emergency equipment available on-site includes the following:

5.4.1 Fire Fighting Equipment

Water Truck. One unit is currently located at the former Training Center on the site. This is a mobile source of water for firefighting or decontamination. Typically this unit is used for dust suppression on roadways. This tanker truck has a 500 gallon tank and is equipped with a fire hose and road sprays. The water truck is for use in non-winter months only. CB&I will provide additional water trucks mainly for dust suppression but they will also be used for firefighting and decontamination if necessary.

Portable Fire Extinguishers. A portable fire extinguisher is located at the Calciner Pond 90-day generator accumulation area and near any operating gas extraction and treatment system. A portable fire extinguisher will be available at all storage tanks, portable containers, and other container storage area(s). CB&I company policy requires a fire extinguisher in all vehicles and equipment used for the earthwork activities and on the mobile fueling tank truck. CB&I will provide fire extinguishers at all fuel storage tanks and all site trailers (office, break and/or decontamination).

5.4.2 Other Spill Control Equipment

Skid Loader. One unit is present on-site, and is located at the former Training Center. This unit can be used for loading, transporting, and placement of spill control equipment or loose materials such as soil, slag, or silica for use in diking, and for cleaning up contaminated soil or solid materials.

Wheeled Loader. One unit is currently present on-site. The unit can be used for loading and transporting large amounts of soil, slag or silica for use in diking and cleanup. CB&I plans to have at least one front end loader on site for earth moving tasks that can also be employed for spill clean-up activities.

Railcar Mover. One unit is present on-site and is located at the former Training Center. This is a mobile loader (minus bucket) that can be used to move railcars along tracks within the FMC OU.

5.4.3 Other Decontamination Equipment

Water Truck. This is the same unit listed above under firefighting equipment.

Other Decontamination Equipment. There will also be an equipment decontamination station set up on-site for general decontamination. CB&I will provide brushes, shovels, pry bars and other decontamination equipment to address the needs of the remedial action and decontamination needs.

5.5 BULK FUEL/OIL HANDLING PROCEDURES [40 CFR §112.7(a)(3)(ii)]

Outside oil suppliers and transportation companies are required to comply with the regulations established by the Department of Transportation for general loading and unloading 49 CFR §177.834 and with requirements for loading and unloading of Class 3 (flammable liquid) materials (49 CFR §177.837). The driver is required to attend all loading and unloading operations. Signs will be present at the tank farm advising the drivers not to depart before disconnecting oil transfer lines.

5.6 INSPECTIONS [40 CFR §112.7(e)]

As all tanks, portable tanks, and other containers will be utilized for FMC OU remedial action on a temporary basis and are not currently in place, manufacturer's recommended inspections will be performed on all tanks, portable tanks, and other containers at the time they are placed on-site. Monthly inspections of tanks, portable tanks, other containers, loading areas, valves, piping, hoses, secondary containment areas, security systems, and spill response kits will be conducted by trained site personnel. Damages to tanks, portable tanks, other containers, loading areas, valves, piping, hoses, and secondary containment areas and any other unusual observations will be documented during the inspections and communicated immediately to the Project Manager. Corrective actions will be taken as soon as practicable. Corrective actions will be documented and become part of the SPCC record. Inspection checklists will be developed once information is available on the design and location of the oil/fuel storage areas.

5.7 VEHICULAR DAMAGE TO ABOVEGROUND PIPING [40 CFR 112.8(d)(5)]

Operators of vehicles entering the FMC OU will be provided the warning required under 40 CFR §112.8(d)(5) to avoid endangering any aboveground piping or oil transfer operations. Outdoor piping is either above the tank or vertical, positioned adjacent to the tank wall, further ensuring environmental protection in addition to providing vehicle warning

6.0 RELEASE RESPONSE PLAN

Efficiency of release containment depends upon prompt but informed reaction by all personnel involved. Visible discharges of oil must be promptly corrected, including accumulations of oil in containment areas. In the event of an oil release, absorbent materials will be readily available to accommodate cleanup; containment and cleanup measures will be undertaken immediately. The source of the release will be shut down or isolated to minimize the size of the release. The procedures to be followed in the event of a release are described below. **However, no person should take response actions for which they are not properly trained.**

6.1 SPILL RESPONSE PROCEDURE [40 CFR §112.7(a)(3)(iii) and (iv); 40 CFR §112.7(a)(5)]

Visible discharges of oil must be promptly corrected, including accumulations of oil in containment areas. CB&I personnel implementing a bulk transfer are responsible for taking immediate steps to respond to a spill or release during transfer. Any leaks or spills that are discovered during formal or informal daily site inspections will be immediately addressed by the first observer, with additional support as needed. If a spill is discovered, the primary or alternate spill responder will be contacted. It is the responsibility of site personnel to isolate or shut down the source of the release, if doing so does not put themselves or others in danger. The source of the release can be isolated by shutting down the operation, closing valves to the affected tank or equipment, or taking other actions deemed appropriate.

Once the source of the spill has been isolated, the spill responder will evaluate whether there is a risk of migration of spilled materials towards a drainage-way. Any nearby drainage-ways should be blocked with solid absorbent or earth, as necessary, to prevent flow until the spill can be fully abated. Once migration of spilled materials has been diverted, site personnel will refer to the MSDS for chemical-specific cleanup procedures. Important information to reference prior to commencing cleanup activities include, but are not limited to, chemical incompatibilities, flammability, health hazards, and containerization requirements.

After the source of the spill has been abated, the primary or alternate spill responder will contact the FMC Incident Commander and the Project Manager, to report the event. The contact list is included in Appendix E providing the names of the primary and secondary personnel accountable for oil spill prevention and facility response. The contact list also includes important agency numbers and spill response contractor contacts.

6.2 EMERGENCY EQUIPMENT [40 CFR §112.7(a)(3)(iii)]

A list of emergency response equipment is noted in Section 5.4 of this SPCC Plan. The equipment is also available for use by any outside emergency responders.

6.3 DISPOSAL OF RECOVERED MATERIALS [40 CFR §112.7(a)(3)(v)]

Immediately after the emergency response involving an oil/fuel release, the FMC Incident Commander and the Project Manager must provide for treating, storing, or disposing of recovered waste, contaminated soil, or any other material that results from a release, fire, or explosion at the FMC OU. He or she is responsible for ensuring that all drums/containers used for cleanup are of compatible materials of construction for the spilled materials.

Materials recovered from oil releases will be disposed in accordance with local, state, and federal requirements. Recovered liquids will be pumped into the used oil tank and later shipped to an

approved facility for oil recovery as specified in the *Transportation and Off-Site Disposal Plan*. Oil absorbents and discarded personal protective equipment (PPE) will be placed in open-top DOT-approved 55-gallon drums and disposed through a contracted waste hauler, depending on the nature of the waste material. Used oil and other recyclable regulated materials will be shipped to an approved facility for waste treatment and energy recovery.

6.4 DECONTAMINATION OF NON-DISPOSABLE MITIGATION MATERIALS

In general, mitigation materials will be one-time use and will be disposed in accordance with all local, state, and federal regulations. Some mitigation equipment, such as shovels, will require decontamination prior to storage for future mitigation efforts. Prior to commencing decontamination, site personnel will consult with the MSDS or other available documentation as necessary to select a compatible detergent, if required. Site personnel will use chemical appropriate PPE as determined from the MSDS, including but not limited to gloves and eye protection, during the entire decontamination process.

Small Non-Disposable Equipment: If use of a detergent is required, a cleaning solution will first be prepared. A 5-gallon pail of cleaning solution may be sufficient to fully submerge small equipment. Site personnel will submerge small equipment in solution and scrub with brushes, as necessary, particularly at joints or unions. A separate clean water rinse drum or bucket will be used to rinse off any remaining detergent solution, then equipment will be allowed to dry prior to storage. The cleaning solution and rinse containers will be sampled then sealed pending analysis. Based on the results of lab analysis a disposal method will be selected.

*Large Non-Disposable Equipment***:** For decontamination of larger equipment, e.g. too large for decontamination in a 55-gallon drum, a temporary decontamination station may be put in place at the FMC OU for general large equipment decontamination. The same general procedure will be followed; specifically, equipment will be scrubbed with cleaning solution followed by a clean water rinse. Decontamination fluids will be pumped from the decon pad and containerized for analysis prior to selection of a disposal facility.

6.5 NOTIFICATION REQUIREMENTS [40 CFR §112.4(a); 40 CFR §112.7(a)(4)]

The FMC Incident Commander and the Project Manager will be notified in the event of a release of oil/fuel. Spill incident report forms are provided in Appendix F. These forms are designed to assist in providing information in the event of a discharge/release/spill. The forms will help document the event, identify information that needs to be obtained, and list site-specific information. All spills need to be reported regardless of volume or location. Depending on the size and site conditions of the spill, site personnel may have to report the release to additional regulatory agencies.

When notification to outside agencies becomes necessary, the FMC Incident Commander, or his/her designee, shall be prepared to provide the following information:

- Name, title, and phone number of person reporting.
- Facility name, address and phone number.
- Date and time of the discharge.
- Type of material discharged; approximate concentration, if applicable.
- Estimates of the total quantity discharged.
- Estimate of the quantity discharged into or upon the navigable waters of the United States or adjoining shorelines, as described in 40 CFR §112.1(b).
- Source and cause of oil discharge.
- Description of all affected media – air, water, soil.
- Damages or injuries caused by the discharge.
- Spill response actions to stop, mitigate, and remove effects of discharge.
- Whether an evacuation may be needed.
- Names of individuals and/or organizations who have also been contacted.

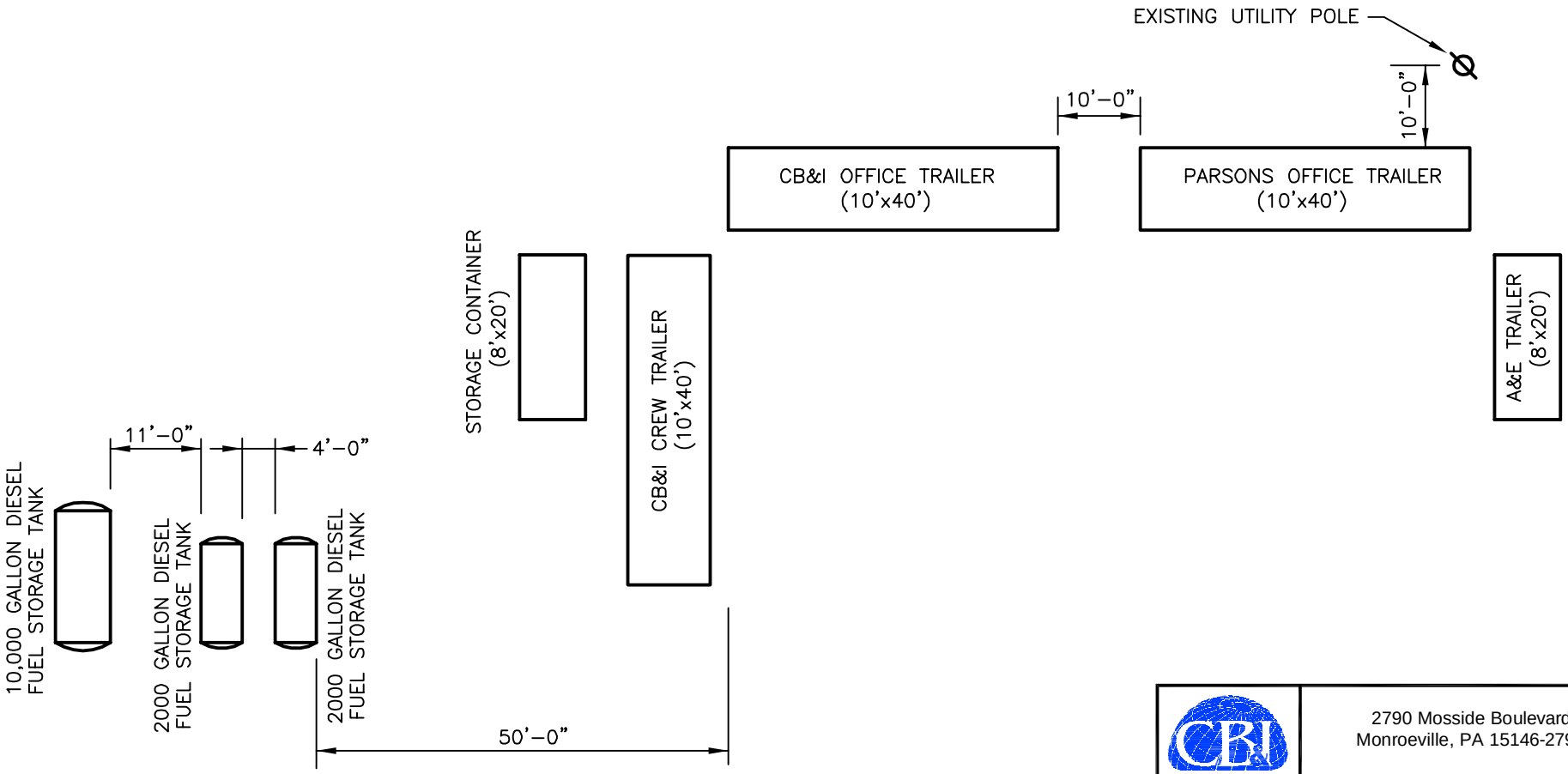
For two oil spills of 42 gallons or greater within a rolling 12-month period, or a 1,000-gallon or greater spill of oil, a separate report containing the following information will be submitted to EPA within 60 days of the release events, in accordance with 40 CFR §112.4(a):

- Facility name.
- Name of the reporting individual.
- Facility location.
- Maximum facility storage capacity and daily throughput.
- Description of corrective actions and countermeasures taken.
- Description of the facility, including maps and flow diagrams.
- Cause of the discharge(s), including an analysis of the failed system(s).
- Description of additional preventive measures taken or contemplated to prevent recurrence.
- Other pertinent information as required by the EPA.

File: O:\Project\152356\152356-A1.dwg
Plot Date/Time: Oct 20, 2014 - 3:44pm
Plotted By: greg.jones

Xref :
Image : CB&I.jpg

OFFICE	DATE	DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
Pittsburgh, PA	-/-/--	--	--	--	--	152356-A1



NOTE:
ALL DIMENSIONS ARE APPROXIMATE.

SCALE
0 20 40 FEET

2790 Mosside Boulevard
Monroeville, PA 15146-2792

FMC CORPORATION
POCATELLO, ID

FIGURE 1

SITE LAYOUT

FMC POCATELLO
POCATELLO, ID

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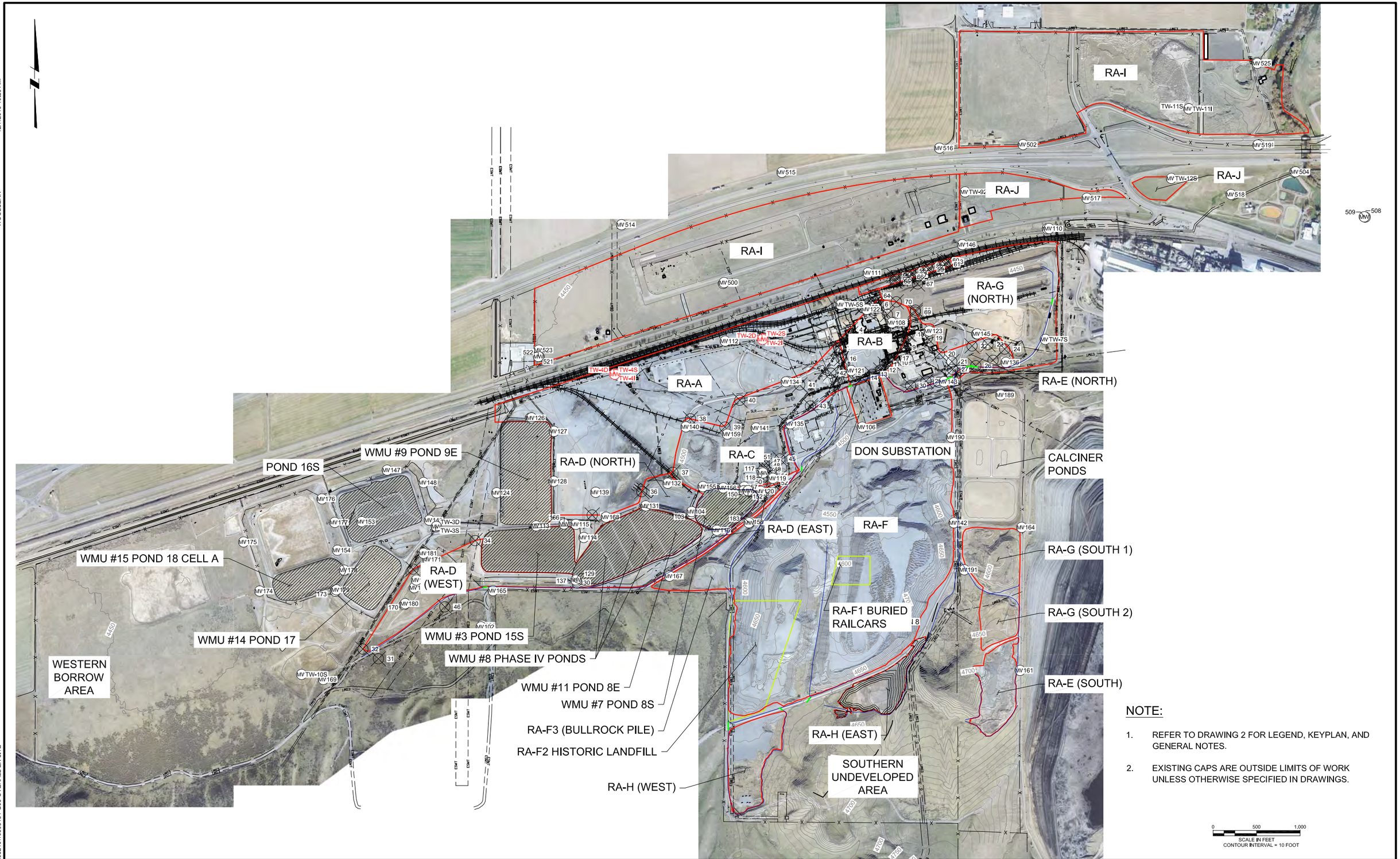
WOOLSERN



NOTE:

1. REFER TO DRAWING 2 FOR LEGEND, KEYPLAN, AND GENERAL NOTES.
2. EXISTING CAPS ARE OUTSIDE LIMITS OF WORK UNLESS OTHERWISE SPECIFIED IN DRAWINGS.

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SCALE IN FEET
CONTOUR INTERVAL = 10 FOOT

REV	DATE	BY	DESCRIPTION
A	03-03-2014	JTV	30% SUBMITTAL

SCALE: 1" = 500'

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED C TOMLINSON
DRAWN J VERNER
CHECKED M BOWMEN

PRELIMINARY DESIGN PHASE - 03-03-2014

NOT FOR CONSTRUCTION
This document is an interim document and not suitable for construction. As an interim document, it may contain data that is potentially inaccurate or incomplete and is not to be relied upon without the express written consent of the preparer.

MWH

FMC

PROJECT LOCATION: POCATELLO, IDAHO

PROJECT: FMC OU REMEDIAL DESIGN
EXISTING OVERALL SITE CONDITIONS

DRAWING 4

C:\pwworkdir\dms05210\10503434-G03-OVERALL EX SITE

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WOOLSERN

NOTE:

1. REFER TO DRAWING 2 FOR LEGEND, KEYPLAN, AND GENERAL NOTES.

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DESIGNED C TOMLINSON
DRAWN R WOOLSEY
CHECKED M BOWMEN

PRELIMINARY DESIGN PHASE - 03-03-2014

NOT FOR CONSTRUCTION

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MWH

FMC

PROJECT LOCATION: POCATELLO, IDAHO

PROJECT: FMC OU REMEDIAL DESIGN
CONTRACTOR STAGING AREA, CONSTRUCTION
WATER SUPPLY, AND ELECTRICAL SUPPLY LOCATIONS

DRAWING 42

C:\pwworkdir\dms05210\10503434-STAGING

12/7/2010 10:20 AM

WOOLSERN

RA-I

RA-J

POND 3

RA-G (NORTH)

RA-B

POND 4

POND 2

RA-A

RA-E (NORTH)

BASIN 2

BASIN 3

RA-C

DON SUBSTATION

RA-D (NORTH)

BASIN 4

RA-D (EAST)

RA-F

RA-G (SOUTH 1)

BASIN 1

BASIN 7A

RA-D (WEST)

RA-F1 BURIED RAILCARS

RA-G (SOUTH 2)

RA-BULL ROCK

POND 7

BASIN 5

BASIN 8

BASIN 6

WESTERN BORROW AREA

RA-F2 HISTORIC LANDFILL

RA-E (SOUTH)

BASIN 7

BASIN 9

RA-H (EAST)

POND 1

POND 5

RA-H (WEST)

SOUTHERN UNDEVELOPED AREA

0 500 1,000

SCALE IN FEET
CONTOUR INTERVAL = 10 FOOT

NOTE:

1. REFER TO DRAWING 2 FOR LEGEND, KEYPLAN, AND GENERAL NOTES.

REV	DATE	BY	DESCRIPTION
A	03-03-2014	JTV	30% SUBMITTAL

SCALE: 1" = 500'

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED C TOMLINSON
DRAWN J VERNER
CHECKED M BOWMEN

PRELIMINARY DESIGN PHASE - 03-03-2014

NOT FOR CONSTRUCTION
This document is an interim document and not suitable for construction. As an interim document, it may contain data that is potentially inaccurate or incomplete and is not to be relied upon without the express written consent of the preparer.

MWH

FMC

PROJECT LOCATION: POCATELLO, IDAHO

PROJECT: FMC OU REMEDIAL DESIGN
OVERALL STORMWATER BASINS

DRAWING 44

C:\pwworkdir\dms052101105034\34-C35-BASINS

SPCC APPENDIX A

SUBSTANTIAL HARM CRITERIA FORM

CERTIFICATION OF THE APPLICABILITY OF THE SUBSTANTIAL HARM CRITERIA

Facility Name: FMC Pocatello

Facility Address: 2.5 Miles West of Pocatello, ID on Highway 30

1. Does the facility transfer oil over water to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gallons?

Yes ___ No _X_

2. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation within any aboveground oil storage tank area?

Yes ___ No _X_

3. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula in Attachment C-III to this appendix or a comparable formula[1]) such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments? For further description of fish and wildlife and sensitive environments, see Appendices I, II, and III to DOC/NOAA's "Guidance for Facility and Vessel Response Plans: Fish and Wildlife and Sensitive Environments" (see appendix E to this part, section 13, for availability) and the applicable Area Contingency Plan.

Yes ___ No _X_

4. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula in Attachment C-III to this appendix or a comparable formula[1]) such that a discharge from the facility would shut down a public drinking water intake?

Yes ___ No _X_

5. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and has the facility experienced a reportable oil discharge in an amount greater than or equal to 10,000 gallons within the last 5 years?

Yes ___ No _X_

Certification:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

Signature: Roger G. Voss Name (print or type): Roger Voiss

Date: 7-10-14 Title: Project Manager

SPCC APPENDIX B

SPCC PLAN REVIEW STATEMENT

SPCC PLAN REVIEW STATEMENT

Review Statement:
In accordance with [112.1(b)], following any review and evaluation of the SPCC Plan the following statement should be completed and kept with the Plan.

Review Date: ______________________

Statement: I have completed review and evaluation of the SPCC Plan for the FMC Pocatello Site on _________ and will / will (circle one) not need to amend the Plan as a result.

Name: ___________________________ **Signature:** _________________________________
Title: ____________________________ **Review Date**: _______________________________

Review Statement:
In accordance with [112.1(b)], following any review and evaluation of the SPCC Plan the following statement should be completed and kept with the Plan.

Review Date: ______________________

Statement: I have completed review and evaluation of the SPCC Plan for the FMC Pocatello Site on _________ and will / will (circle one) not need to amend the Plan as a result.

Name: ___________________________ **Signature:** _________________________________
Title: ____________________________ **Review Date**: _______________________________

Review Statement:
In accordance with [112.1(b)], following any review and evaluation of the SPCC Plan the following statement should be completed and kept with the Plan.

Review Date: ______________________

Statement: I have completed review and evaluation of the SPCC Plan for the FMC Pocatello Site on _________ and will / will (circle one) not need to amend the Plan as a result.

Name: ___________________________ **Signature:** _________________________________
Title: ____________________________ **Review Date**: _______________________________

SPCC APPENDIX C

SPCC PLAN RECORD OF CHANGES AND AMENDMENTS

SPCC PLAN RECORD OF CHANGES AND AMENDMENTS

Change/Amendment Record:

Following any change to the SPCC Plan, including administrative changes (which do not need re-certification by PE) and technical amendments (which do need re-certification by PE), the following record should be completed to summarize the change.

Date Change Completed	Administrative Change or Technical Amendment?	Description of Change	PE Certification Required?	Person Making Change
9/25/14	**Technical Amendment**	**Fuel Tank Configuration and volume change (New Figure 1)**	**Yes**	**John Brassard**
10/16/14	**Administrative**	**Site Contact Change – Section 3.1**	**No**	**John Brassard**
10/16/14	**Technical**	**Fuel storage capacity – Section 2.0**	**Yes**	**John Brassard**
10/16/14	**Technical**	**Fuel storage capacity – Section 3.2**	**Yes**	**John Brassard**
10/16/14	**Technical**	**Added 10,000 gal. fuel tank and containment dimensions – Section 4.1.1**	**Yes**	**John Brassard**
10/16/14	**Technical**	**Fuel truck capacity change – Section 4.1.3**	**Yes**	**John Brassard**
10/16/14	**Technical**	**Fuel tank and containment calculations – Appendix D**	**Yes**	**John Brassard**

SPCC APPENDIX D

SECONDARY CONTAINMENT VOLUME CALCULATIONS

Diesel Fuel Storage Tank Volume				
Tank diameter inches	Tank End Area sq. ft.	Tank Length inches	Volume of Tank cubic ft.	Volume of Tank gallons
84	38.48451001	85	272.5986125	2039.179101
96	50.26548246	318	1332.035285	9964.315259

Diesel Fuel Storage Tank Containment Volume				
Containment Length ft.	Containment Width ft.	Containment Height inches	Volume of Containment cubic ft.	Volume of Containment gallons
11	8	43	315.3333	2358.856991
35.5	8.5	60	1508.75	11286.23304

SPCC APPENDIX E

EMERGENCY CONTACT LIST

Emergency Contact List

FMC INCIDENT COMMANDER (EMERGENCY COORDINATOR) AND ALTERNATES

Name	Phone Numbers	Address	Site Radio Channel
FMC Incident Commander (Emergency Coordinator)			
Mark Smith	Cell: (208) 681.8227 Office: (208) 236.6276 Home: (208) 232.3595	113 Dartmouth Pocatello, ID 83201	TBD
Alternates			
Tim Whiteus	Cell: (208) 241.7576 Office: (208) 232.0798 Home: (208) 241-7576	310 E. Center Street Suite 212 Pocatello, ID 83201	TBD

CB&I PERSONNEL EMERGENCY CONTACT LIST

Name	Phone Numbers	Address	Site Radio Channel
FMC Incident Commander (Emergency Coordinator)			
Roger Voiss	Cell: (630) 248.0738	6830 S. Fiddler's Green Circle, Suite 310, Greenwood Village, CO 80111	TBD
Marcella Wallace	Cell: (252) 773.2900	Front Royal, VA	TBD
Wayne Wolter	Cell: (925) 595 5355	Bothel, WA	TBD
George Arbutina	Cell (609) 588 6338 Office (610) 209 4134	Trenton, NJ	n/a

OFFSITE EMERGENCY RESPONSE AGENCIES

FIRE-FIGHTING		
Name	Address	Telephone Number
Chubbuck Fire Department (Co-Primary)	4727 Yellowstone Avenue Chubbuck, ID 83202	911[1] or (208) 237-3212 non-business hours answering machine
Fort Hall Fire and EMF District (Co-Primary)	P.O. Box 306 Fort Hall, ID 83203	(208) 478-3784
Pocatello Fire Department (Alternate)	408 E. Whitman Pocatello, ID 83201	911[1] or (208) 234-6201 non-business hours answering machine
MEDICAL SERVICES		
Name	Address	Telephone Number
City/County Ambulance	408 E. Whitman Pocatello, ID 83201	911[1] or (208) 234-6201 non-business hours answering machine
Power County Ambulance	550 Griffin Road American Falls, ID 83211	911[1] or (208) 226-2319[2]
Life Flight (Helicopter)	651 Memorial Drive Pocatello, ID 83201	911[1] or (208) 239-1800[3] or 1-800-237-0911
Portneuf Medical Center	651 Memorial Drive Pocatello, ID 83201	911[1] or (208) 239-1000
POLICE		
Name	Address	Telephone Number
Sheriff – Power County (Primary)	550 Griffin Road American Falls, ID 83211	911(1) or (208) 226-2319(2) non-business hours answering machine
Idaho State Police (Alternate)	5205 South 5th Avenue Pocatello, ID 83204	911(1) or (208) 236-6066
Fort Hall Police Department (Alternate)	PO Box 400 Fort Hall, ID 83203	(208) 237-0137(4) non-business hours answering machine (208) 478-4000(5)

[1]The "911" telephone number contacts the Pocatello Police Department, who will then dispatch the appropriate off-site emergency response organization.

[2]This telephone number contacts the Power County Sheriff's Office Dispatcher, who will dispatch police officers and/or ambulance, as requested.

[3]Telephone number for emergency room; Non-emergency telephone number is (208) 239-1834.

[4]Telephone number for Shoshone-Bannock Tribes Emergency Management & Response (during business hours).

[5]Telephone number for Fort Hall Police Dispatcher (during non-business hours).

SPCC APPENDIX F

SPILL INCIDENT FORM

Spill Incident Report

NOTE: All emergency notifications to local, state, or federal agencies are to be made by the FMC Incident Commander, MWH Construction Manager, or designee.

Date of notification: _____ Date of Incident: _____

Name of person making notification: _____

Job Title: _____

Location of incident on the Site: _____

Contractor(s) involved in the incident: _____

Contractor contact name and phone #: _____

Were there injuries as a result of the spill? No Yes If yes, specify: _____

Was there a fire or explosion? No Yes If yes, specify: _____

What materials were involved in the incident? _____

Briefly describe the succession of events: _____
_____

Briefly describe the cause of the spill: _____
_____

Briefly describe corrective actions taken: _____
_____

Indicate which notifications were made:

		Name of person receiving call:
☐	National Response Center	_____
☐	EPA Project Coordinator	_____
☐	Idaho DEQ	_____
☐	ShoBan Tribes	_____
☐	Pocatello Fire Department	_____
☐	Chubbuck Fire Department	_____
☐	Fort Hall Fire and EMF District	_____
☐	Other: _____	

Be sure to log all Agency comments, responses, directions, etc.

SPCC APPENDIX G

MANAGEMENT APPROVAL AND PE CERTIFICATION

Management Approval

40 CFR 112.7

CB&I is committed to maintaining the highest standards for preventing discharges of oil to navigable waters and the environment through the implementation of this SPCC Plan. This SPCC Plan has the full approval of CB&I management. CB&I's management has committed the necessary resources to implement the measures described in this Plan.

Roger Voiss is the Designated Person Accountable for Oil Spill Prevention at the FMC OU site during CB&I's site-wide grading and has the authority to commit the necessary resources to implement the Plan as described.

CB&I Authorized Representative — Roger Voiss

Signature — Roger A. Voiss

Title — Project Manager

Date

Professional Engineer Certification

40 CFR 112.3(d)

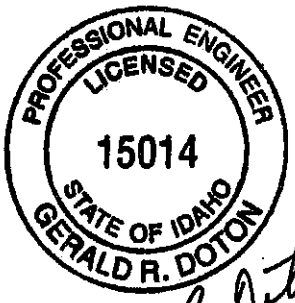
The undersigned Registered Professional Engineer is familiar with the requirements of Part 112 of Title 40 of the Code of Federal Regulations (40 CFR part 112) and has visited and examined the facility, or has supervised examination of the facility by appropriately qualified personnel. The undersigned Registered Professional Engineer attests that the Spill Prevention, Control and Countermeasures Plan has been prepared in accordance with good engineering practice including consideration of applicable industry standards and the requirements of 40 CFR part 112 that procedure for required inspections and testing have been established, and that this Plan is adequate for the FMC OU site. [112.3(d)]

This certification in no way relieves the owner or operator of the facility of his/her duty to prepare and fully implement this SPCC Plan in accordance with the requirements of 40 CFR part 112.

Gerald R. Doton — October 29, 2014

Signature — Date

PE Seal



Gerald R. Doton

Name of Professional Engineer

15014 — Idaho

Registration Number — Issuing State

Gerald R. Doton
10-29-2014

FMC Idaho LLC, Pocatello, Idaho

TRANSPORTATION AND OFF-SITE DISPOSAL PLAN for the FMC OU

MARCH 2014

Revised January 2015

MWH

TABLE OF CONTENTS

LIST OF ACRONYMS

AHW	Acute hazardous waste
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	contaminant of concern
EMF	Eastern Michaud Flats
EPA	United States Environmental Protection Agency
ET	Evaporative Transpiration
FMC	FMC Corporation
FMC OU	FMC Operable Unit
HSE	Health, Safety, and Environmental
IROD	Interim Record of Decision Amendment
LQG	Large quantity generator
MWH	MWH Americas, Inc.
NACE	National Association of Corrosion Engineers
OU	Operable Unit
PCB	Polychlorinated Biphenyl
POTW	publically-owned treatment works
RD	Remedial Design
ROD	Record of Decision
RA	Remedial Action
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
SQG	Small quantity generator
SOP	Standard Operating Procedure
TCLP	Toxicity Characteristic Leaching Procedure
TODP	Transportation and Off-Site Disposal Plan
TSCA	Toxic Substances Control Act
UAO	Unilateral Administrative Order

1.0 INTRODUCTION

This Transportation and Off-Site Disposal Plan (TODP) has been prepared on behalf of FMC Corporation (FMC) and presents the planned procedures to handle and dispose of wastes that may be generated during soil remedial action and groundwater remedial action construction activities at the FMC Operable Unit (FMC OU) of the Eastern Michaud Flats (EMF) Superfund Site that will be transported offsite for disposal (or recycle). The FMC OU is located in Power County in Idaho, approximately 2.5 miles northwest of Pocatello. The EMF Site includes two adjacent production facilities, the former FMC Corporation elemental phosphorus (P4) processing plant that ceased operation in 2001 and a phosphate fertilizer processing facility currently operated by the J.R. Simplot Company. The EMF Site is shown on Figure 1-1 and encompasses both the FMC and Simplot plants and surrounding areas (Off-Plant OU) affected by releases from these facilities.

This TODP is one of the deliverables specified in the Remedial Design/Remedial Action (RD/RA) Unilateral Administrative Order (UAO, EPA, 2013) issued by the EPA on June 10, 2013 which became effective on June 20, 2013 requiring FMC Corporation to the remedial actions set forth in the Interim Amendment to the Record of Decision for the EMF Superfund Site FMC Operable Unit (IROD; Environmental Protection Agency [EPA], 2012). This TODP has been prepared to address wastes generated or managed during the implementation of the soil components (initial site grading and cover construction) of the remedial action and groundwater remedial action construction. This TODP will be revised, as required, to address wastes generated or managed during implementation of the groundwater components (during pumping and treating) of the remedial action. A more detailed description of the selected remedy for the FMC OU is presented in Section 2.4.2 of the *Final Remedial Design Work Plan* (MWH, 2013).
As specified in Section 5.4.7 of the *Final Remedial Design Work Plan*, this TODP contains descriptions (as appropriate) for:

- Proposed locations and routes for off-site shipment of waste material;
- Identification of communities affected by shipment of waste material; and
- Description of plans to minimize impacts on affected communities.

Additionally, this TODP may be updated, modified, or appended during the progression of Site activities based upon new information, actual wastes encountered during the Site soil and groundwater remedial actions, changes in regulations, or improved management practices. All revisions to this TODP will be submitted to the USEPA for review and approval.

This TODP, by definition, does not address the movement of soil and fill within the FMC Plant OU or the on-site disposition of non-hazardous groundwater generated during well development.

1.1 PROJECT LOCATION

The EMF Superfund Site includes two adjacent production facilities, the former FMC Corporation P4 processing plant that ceased operation in 2001 and a phosphate fertilizer processing facility currently operated by the J.R. Simplot Company. The EMF Site encompasses both the FMC and Simplot plants and surrounding areas affected by releases from these facilities. The FMC OU of the EMF, consisting of the FMC Plant Site and other FMC-owned

properties at the EMF Site, is on privately-owned fee land, most of which is located within the external boundaries of the Fort Hall Indian Reservation. As shown on Figure 1-2, the FMC Plant OU occupies approximately 1,450 acres in Power County, Idaho approximately 2.5 miles northwest of the city of Pocatello and consists of the FMC Plant Site (i.e., the former operating facility located south of Highway 30), the Southern and Western Undeveloped Areas (SUA and WUA) that are also located south of Highway 30, and FMC-owned Northern Properties located north of Highway 30. The easternmost portions of the FMC OU are located outside the reservation boundary.

1.2 ORGANIZATION OF THE TODP

The remainder of this TODP is comprised of the following sections:

- Section 2.0 presents the expected and potential waste stream inventory and procedures for waste determination for wastes generated or managed during the soil remedy and groundwater remedy construction.

- Section 3.0 presents the waste management procedures including the requirements for off-site shipment of waste materials per Paragraph 35 of the UAO and notification procedures in the event of newly identified wastes encountered during implementation of the soil remedy and/or groundwater remedy construction.

- Section 4.0 identifies off-site disposal facilities and proposed transportation routes.

- Section 5.0 provides references.

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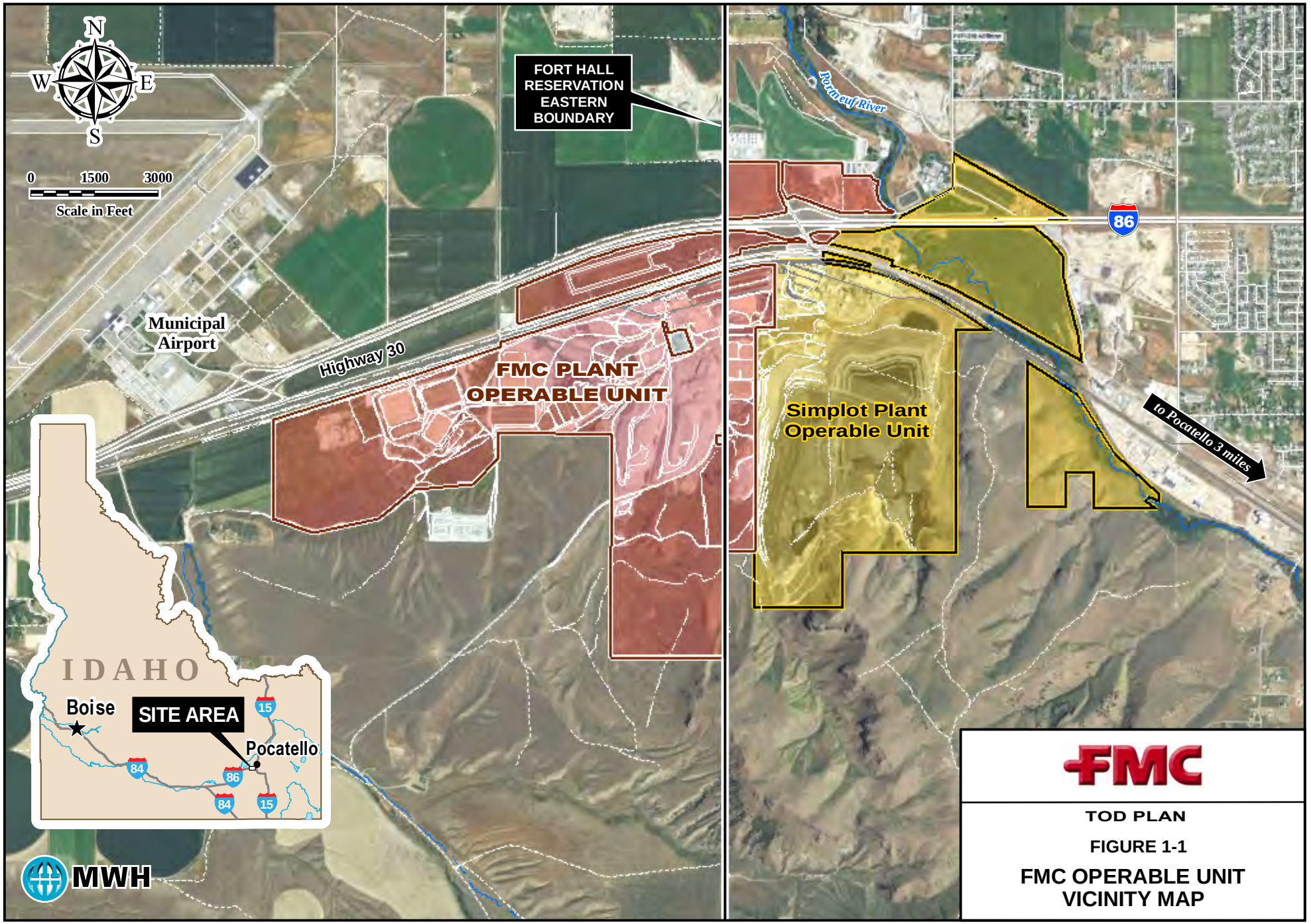

Legend

- FMC OU Boundary
- Remediation Area
- Simplot Property Boundary
- Existing capped areas (~85 acres)

FORT HALL RESERVATION EASTERN BOUNDARY

RA-I
RA-I
RA-J
RA-J
RA-I
RA-I
RA-G
RA-B
RA-A
RA-E
RA-A
RA-C
RA-D
RA-F
RA-G
RA-D
RA-E
RA-H
RA-H

86

WESTERN UNDEVELOPED AREA

SOUTHERN UNDEVELOPED AREA

N
W
E
S

0 700 1400
Feet

MWH

FMC

TOD PLAN
FIGURE 1-2
FMC OPERABLE UNIT
SITE PLAN

2 July 2013

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2.0 WASTE STREAM INVENTORY

This section provides a preliminary inventory of waste streams which may be generated and transported for off-site disposal during implementation of the soil remedial action and groundwater remedial action construction. The preliminary waste stream inventory is presented in Table 2-1 which provides:

- Waste type
- Waste Determination Basis
- Onsite Accumulation or Storage
- Planned Disposal

This waste inventory is deemed to be "preliminary" and will be updated as new information becomes available that warrants a change, e.g., as waste streams are encountered and waste determinations are made.

TABLE 2.1. UPDATED SOLID WASTE INVENTORY FOR SITE REMEDIAL ACTIONS
UPDATED 1/9/15
FMC - POCATELLO, IDAHO

Expected and/or Potential Waste or Material	Preliminary Waste Determination[1]	Waste Determination Basis	On-Site Accumulation or Storage	Planned Disposal
Trash (i.e., personal protective equipment, paper, glass, metal, plastics, and food waste); Packaging materials (i.e., wood, cardboard, paper, plastic, strapping), and Vegetative clearing (trees, brush)	Non-hazardous solid waste	Generator knowledge	Placed in plastic garbage bags and/or containerized in metal roll-off containers at the end of each work shift.	Transport to Bannock County landfill, Pocatello, Idaho, for disposal.
Sediment and water collected during RA-A storm sewer piping cleaning	Non-hazardous solid waste	Generator knowledge, visual assessment of P4[2] and historic TCLP results performed during video survey in November 2013.	Water and sediment will be contained on-site (e.g., in Baker tanks). Water sample will be collected from each container for waste determination analysis (i.e., TCLP metals and pH). Following waste determination, water will be disposed. A representative sample of remaining sediments will collected from each container for waste determination analysis (i.e., TCLP metals and visual P4 examination[2]). Following waste determination, sediments will be disposed.	If water is determined to be non-hazardous, it will be used for dust control on site. If water is determined to be hazardous, it will be transported to US Ecology, Grand View, ID for treatment and disposal. If sediment is determined not to contain P4 and be non-hazardous, it will be allowed to completely dry and will be used as general fill in RA-B. If sediment is determined to contain P4 or otherwise be subject to management as hazardous waste, it will be shipped to US Ecology, Grand View, ID or a licensed hazardous waste incinerator (e.g., Heritage-WTI, East Liverpool, OH), pending waste acceptance.
Decontamination wastes (i.e., water and/or sediments) generated during routine and/or emergency response actions	Nonhazardous solid waste	Generator knowledge and historic TCLP results.	Water and sediment will be contained on-site (e.g., in drums or other containers). Water sample will be collected from each container for waste determination analysis (i.e., TCLP and pH). Following waste determination, water will be disposed. A sample of remaining sediments from each container will collected for waste determination analysis (i.e., TCLP metals). Following waste determination, sediments will be disposed.	If water is determined to be non-hazardous, it will be used for dust control on site. If water is determined to be hazardous, it will be transported to US Ecology, Grand View, ID. If sediment is determined to be non-hazardous, it will be allowed to completely dry and will be used as general fill in RA-B or transported to the Bannock County Landfill. If sediment is determined to be hazardous, it will be shipped to US Ecology, Grand View, ID, pending waste acceptance.
Chemical toilet waste - includes chemicals used in portable toilets and human waste	Domestic Sewage	Generator knowledge	No waste accumulation or storage on-site.	Pump on an as-needed basis (minimum once per week) and transport by a permitted portable toilet subcontractor for disposal at Pocatello POTW.
Spent batteries	Universal waste	Generator knowledge	Accumulated in a 5-gallon bucket with lid.	Shipped off-site to a battery recycler, Wistron GreenTech, in McKinney, TX.
Aerosol cans (paint wastes)	Hazardous solid waste	Generator knowledge	Accumulated in closed container at a satellite accumulation station. Full containers will be stored in a 90-day storage area, location to be designated.	Transport to USEcology, Inc,. Hazardous waste disposal facility in Grand View, Idaho for treatment and disposal.

TABLE 2.1. UPDATED SOLID WASTE INVENTORY FOR SITE REMEDIAL ACTIONS
UPDATED 1/9/15
FMC - POCATELLO, IDAHO

Expected and/or Potential Waste or Material	Preliminary Waste Determination[1]	Waste Determination Basis	On-Site Accumulation or Storage	Planned Disposal
Railroad ties removed and discarded during site grading	Non-hazardous solid waste	Railroad tie sample collected on 10/22/14 for TCLP analysis indicated that site railroad ties are not characteristically hazardous. This is consistent with other generator knowledge based upon TCLP studies performed by the Association of American Railroads and the fact that the State of Idaho does not consider creosote-treated railroad ties to be hazardous.	Accumulated on-site in a storage pile.	Railroad ties that are recoverable (i.e., beneficially used as landscape timbers) will be shipped off-site to a commercial recycler. Railroad ties that are not recyclable will be transported to Bannock County landfill, Pocatello, Idaho, for disposal.
Removed bollards consisting of painted steel and concrete.	Non-hazardous solid waste	Generator knowledge	Accumulated in a roll-off bin	Recyclable steel will be transported to Pacific Recycling in Pocatello. Concrete and non-recyclable steel will be placed in an area of RA-G North which requires fill. This area will then be covered with a gamma cap.
Used oil from vehicle maintenance - includes used lubricants, oils, and filters.	Non-hazardous solid waste	Generator knowledge	Accumulated/stored in a closed container labeled as "used oil"	Transport to Tri-State Recycling Service in Downey, Idaho for recycling.
Fuel/oil spill cleanup wastes (i.e., soil/fill materials containing oils and/or fuels)	Non-hazardous solid waste	Generator knowledge	Placed in a container with cover, pending TCLP analysis and waste determination	Transport to USEcology, Inc,. Hazardous waste disposal facility in Grand View, Idaho for disposal.
Concrete and rebar from removal of foundations, pads, and other concrete structures	Non-hazardous solid waste	Generator knowledge	Accumulated in a roll-off bin	Concrete and non-recyclable steel will be placed in an area of RA-G North which requires fill. This area will then be covered with a gamma cap.
Scrap steel and concrete from removal of the car dumper and grizzly near the car dumper (after verification that hydraulic oils were drained during plant decomissioning)	Non-hazardous solid waste	Generator knowledge	Accumulated in a roll-off bin	Recyclable steel will be transported to Pacific Recycling in Pocatello. Concrete and non-recyclable steel will be placed in an area of RA-G North which requires fill. This area will then be covered with a gamma cap.
Scrap steel from removal of rail and rail switches	Non-hazardous solid waste	Generator knowledge	Placed in a dumpster on-Site	Transport to Pacific Recycling in Pocatello, ID for scrap metal recycle.
Structural steel, wood, equipment, and siding from the removal of the chlorinator shack (after verification that the chlorinator system has been properly decommissioned).	Non-hazardous solid waste	Generator knowledge	Accumulated in a roll-off bin	Transport to Bannock County landfill, Pocatello, Idaho, for disposal.
Waste generated during an emergency response action	N/A	See Section 3.3.	Contained on-site (e.g., in drums or Baker tanks) pending TCLP analysis and waste determination.	In consultation with EPA, determine if simlar in nature to any other wastes on this list and handle accordingly, or develop alternative disposal plan.
Spent PPE generated during routine and/or emergency response actions	Non-hazardous solid waste	Generator knowledge	Placed in plastic garbage bags and/or containerized in roll-off containers at the end of each work shift.	Transport to Bannock County landfill, Pocatello, Idaho, for disposal.
Misc. recyclable scrap steel, copper, and aluminum from site clearance	Non-hazardous solid waste	Generator knowledge	Placed in a dumpster on-Site	Transport to Pacific Recycling in Pocatello, ID for scrap metal recycle.

TABLE 2.1. UPDATED SOLID WASTE INVENTORY FOR SITE REMEDIAL ACTIONS
UPDATED 1/9/15
FMC - POCATELLO, IDAHO

Expected and/or Potential Waste or Material	Preliminary Waste Determination[1]	Waste Determination Basis	On-Site Accumulation or Storage	Planned Disposal
Groundwater well installation well development wastewater (groundwater)	Non-hazardous solid waste	Generator knowledge and waste determination of May 2, 2104 on similar wastes.	Temporary accumulation in portable containers on site.	Disposed on-site to the ground surface for general dust control.
Groundwater well installation soil cuttings and cores	Non-hazardous solid waste	Generator knowledge and waste determination of May 12, 2104 on similar wastes.	Temporarily stockpiled on site.	Disposed on-site as general fill.
Asbestos-containing materials (ACMs)	Non-hazardous solid waste regulated under 40 CFR Part 61.	Generator knowledge	Leave in place, spray with water to wet ACMs, cover temporarily.	Use a certified asbestos contractor to package, label, haul and dispose at Bannock County Landfill, Pocatello, ID.

[1] The preliminary waste determination is based upon generator knowledge at the time of development of this plan. Additional waste determination will be performed at the time of generation.

[2] For the cleaning of sediments from the storm sewer piping in RA-A, P4 will be visually identified by examining sediments removed from the underground piping. As water will be used to clean the storm sewer piping, collected sediments will be accumulated in a container along with the water used for cleaning. Once the sediments settle out, representative samples of the sediment will be collected from each container for a visual P4 examination. As these samples will be very wet, the sample will be dried on a hot plate. As the samples dries, any P4 present should oxidize creating a visible smoke. If P4, based on visual observation of smoking or burning, is encountered during sediment examination, then all sediment from that container shall be treated as containing P4.

3.0 WASTE MANAGEMENT PROCEDURES

For those wastes identified in Table 2.1, this section, provide the procedures to be followed during the implementation of the soil remedy at the FMC OU.

3.1 SPECIAL REQUIREMENTS OF THE UAO

Section IX, paragraph 35 of the UAO establishes special requirements for the off-site shipment of waste materials from the Site. The Site may ship waste material from the Site to an off-site facility only after the following are completed:

1) Verify, prior to shipment of each waste material, that the off-site facility is operating in compliance with the requirements of Section 121(d)(3) of CERCLA, 42 USC § 9621(d)(3), and 40 CFR § 300.440, by obtaining a determination and approval from EPA that the proposed receiving facility is operating in compliance with these statutes and regulations.

2) For an out-of-state receiving facility, provide written notice, prior to waste shipment, to the appropriate state environmental official in the receiving facility's state and to the EPA Project Coordinator. This notification does not apply when the total volume of all shipments from the Site to that state does not exceed ten (10) cubic yards. This notification must be in writing and include the following information, where available:

    a. The name and location of the receiving facility

    b. The type and quantity of the waste material to be shipped

    a. The expected schedule for the shipment

    b. The method of transportation.

The Site shall also notify the state environmental official of the out-of-state receiving facility and the EPA Project Coordinator of any major changes in the shipment plan, such as a change of receiving waste facility or method of transportation. This written notification shall be provided after the award of the contract for Remedial Action construction of the soil remedy and before the waste material is shipped.

FMC has already provided notice to EPA regarding the use of the Bannock County Landfill and fulfilled the requirements of Paragraph 35 with its September 12, 2013 letter and approval attachments (included here as Appendix A). FMC will prepare and submit similar notices to EPA and DEQ and other state agencies as required for the balance of the planned disposal sites shown on Table 2-1.

3.2 NEWLY IDENTIFIED WASTES

While all of the expected and potential waste materials for the implementation of the soil remedy and/or construction of the groundwater remedy have been identified in Table 2.1, the possibility exists that unexpected wastes (newly identified) may be uncovered, identified, managed, and/or generated during the implementation of the remedies.

In such an event, the FMC Site Safety Coordinator shall be immediately notified. The FMC Safety Coordinator shall contact the FMC Project Coordinator to update this plan as necessary.

3.3 WASTE DETERMINATION PROCEDURE

FMC, in conjunction with site contractors, will make a hazardous waste determination on each solid waste generated (including wastes generated during an emergency response action) during the soil remedy and/or groundwater remedy construction activities on site. A listing of expected and potential solid wastes which may be generated during the remedy activities is provided in Table 2.1 and will be updated based upon actual waste generation as appropriate. In summary, the waste determination process to be followed at the site is provided here.

For each identified solid waste stream generated at the site, whether a routine or non-routine waste stream, the following steps will be followed:

1) Determine if the waste is excluded from regulation under 40 CFR § 261.4(b).

2) Determine if the waste is a listed hazardous waste per 40 CFR Part 261 Subpart D.

3) Determine if the waste is an acute listed hazardous waste or an extremely hazardous waste.

4) Where the potential for elemental phosphorus exists (e.g., in the storm sewer piping sediments), determine if P4 is present using the procedure outlined in footnote 2 of Table 2.1.

5) Determine if the waste is a characteristic hazardous waste per 40 CFR § 261 Subpart C. This may be done by either:

   - Testing the waste according to the methods set forth in 40 CFR § 261 Subpart C, or
   - Applying knowledge of the hazard characteristics of the waste in light of the materials or the processes used.

6) Determine if the hazardous waste can be managed as a universal waste under 40 CFR § 273.

While there is some flexibility in waste determination for the generator as far as testing of waste streams, application of process knowledge, and frequency of waste determination, the generator must ensure that such waste determination is correct. Whether to test a waste stream versus applying process knowledge and how often to perform a waste determination is largely a function of the generator knowledge of those waste streams, including historical waste determinations, and the potential variability of the waste stream. However, waste determination on a given solid waste stream must be performed, whether by testing or application of process knowledge, frequently enough to ensure that they are accurate and up to date. In addition, the waste determination must be repeated when the facility has reason to believe that the process or operation producing the waste has changed in a manner which could impact the waste determination. For wastes in which testing is warranted, a representative number of samples will

be analyzed (i.e., at least one sample and analysis per container), until such point the waste has been consistently characterized. Then process knowledge may be used.

The solid waste inventory (as provided in Table 2.1) is a tool used to track, record, and monitor waste determination (as required by 40 CFR § 262.11); to track, record, and monitor land disposal restriction information for each waste stream destined for off-site land disposal (as required in 40 CFR § 268.7); and to track final disposition of the wastes. All waste determination documentation will be kept as part of the facility record per 40 CFR 262.40(c).

4.0 OFF-SITE WASTE TRANSPORTATION AND DISPOSAL

4.1 WASTE MATERIALS TO BE TRANSPORTED OFF-SITE

Table 2.1 lists those waste materials that are planned to be shipped off-site for recycle, treatment and/or disposal. Prior to shipment of these waste materials, the verification, approval, and notification requirements of Section IX, paragraph 35 of the UAO will be met. Based on Table 2.1, the following facilities have been identified for use for offsite recycle, treatment and/or disposal:

1. Bannock County Landfill
   1500 North Fort Hall Mine Road
   Pocatello, Idaho 83204

2. US Ecology, Inc.
   20400 Lemley Road
   Grand View, Idaho 83624

3. Tri-State Recycling Service
   27 North 3rd West
   Downey, ID 83234

4. City of Pocatello POTW
   10733 N. Rio Vista Rd.
   Pocatello, ID 83201

5. Pacific Recycling
   3575 Highway 30 West
   Pocatello, ID 83204

6. Heritage-WTI
   1250 Saint George Street
   East Liverpool, Ohio 43920

7. Wistron GreenTech
   2101 Couch Dr.
   McKinney, TX 75069-7314

4.2 OFF-SITE WASTE SHIPMENT TRANSPORTATION

For the major waste streams listed above, off-site facility locations and likely transportation routes are shown as follows:

- Transportation route to Bannock County Landfill presented on Figure 4-1
- Transportation route to US Ecology presented on Figure 4-2

Major roads and communities in-route are identified on these figures. For all other off-site waste, the volumes of waste materials are so low (presumed to be one trip load) that transportation traffic is minimal. For all off-site waste disposal transportation, impacts to communities are considered to be negligible. Therefore, plans to mitigate impacts to communities are not warranted.

Chubbuck

Pocatello

Arbon Valley

FMC OPERABLE UNIT

SEE DETAIL A

Bannock County Landfill

DETAIL A

N
W E
S

0 1
Miles

MWH

EXPLANATION

Preferred route - FMC Operable Unit to Bannock County Landfill, Pocatello, Idaho (approximately 15 miles)

FMC

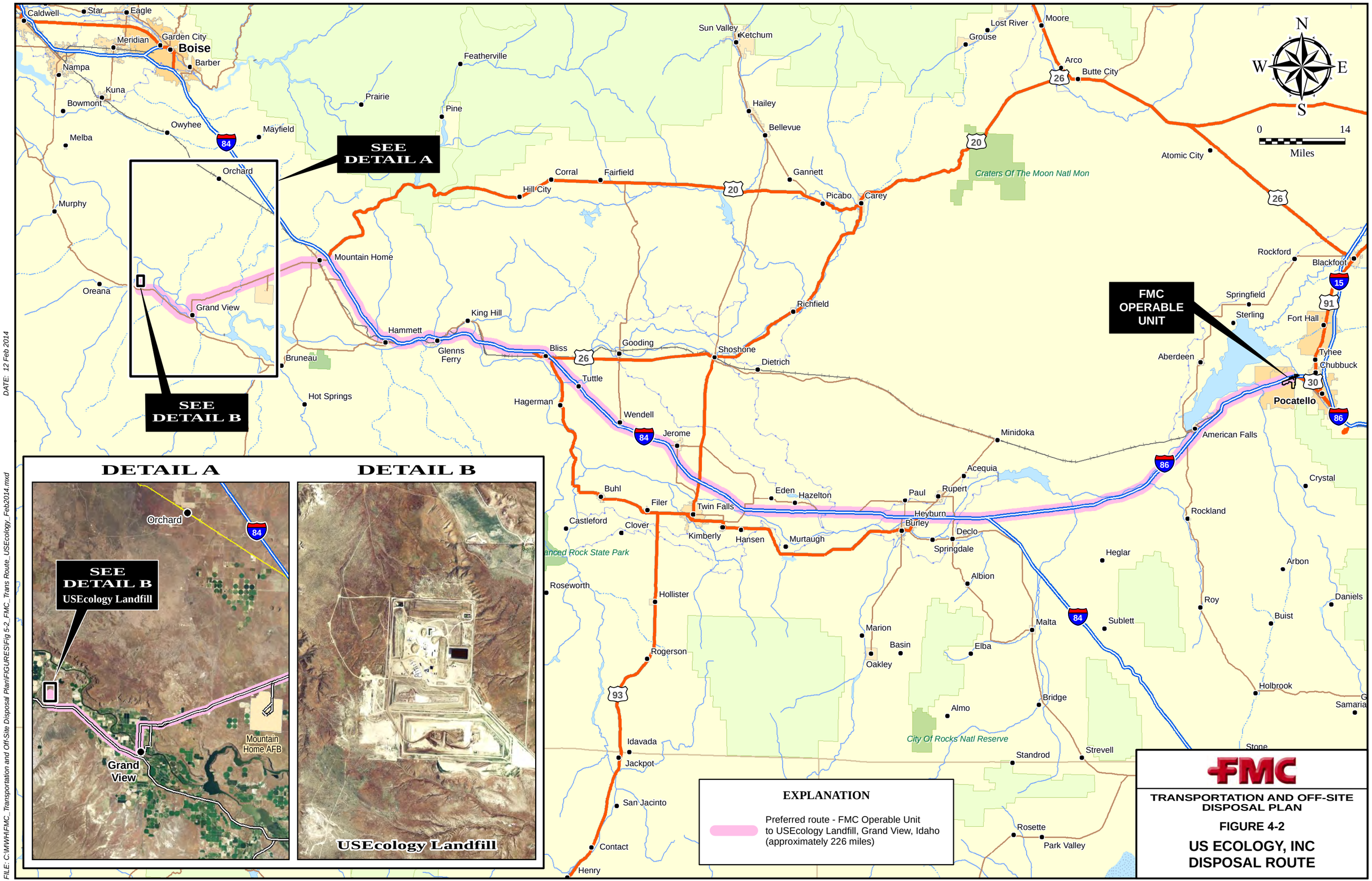
TRANSPORTATION AND OFF-SITE DISPOSAL PLAN

FIGURE 4-1

BANNOCK COUNTY LANDFILL DISPOSAL ROUTE

DATE: 12 Feb 2014

FILE: C:\MWH\FMC_Transportation and Off-Site Disposal Plan\FIGURES\Fig 5-1_FMC_Trans Route_Bannock County Landfill_Feb2014.mxd



DATE: 12 Feb 2014

FILE: C:\MWH\FMC_Transportation and Off-Site Disposal Plan\FIGURES\Fig 5-2_FMC_Trans Route_USEcology_Feb2014.mxd

5.0 REFERENCES

EPA 2012. Interim Amendment to the Record of Decision for the EMF Superfund Site - FMC Operable Unit - Pocatello, Idaho, September 27, 2012.

EPA, 2013. Unilateral Administrative Order for Remedial Design and Remedial Action, EPA Docket No. CERCLA-10-2013-0116, June 10, 2013.

MWH, 2013. Final Remedial Design Work Plan for the FMC OU, December 2013.

APPENDIX A

Notification pursuant to UAO Paragraph 35 – Off-Site Shipments

FMC Corporation
1735 Market Street
Philadelphia PA 19103

215.299.6000 phone
215.299.6947 fax

www.fmc.com

FMC Corporation

Via Email

September 12, 2013

Kevin Rochlin
Project Coordinator
U. S. Environmental Protection Agency
1200 Sixth Avenue, Suite 900
Seattle, WA 98101

Subject: FMC Corporation, Pocatello, ID
Unilateral Administrative Order for Remedial Design and Remedial Action
EPA Docket No. CERCLA 10-2013-0116
Notification pursuant to UAO Paragraph 35 – Off-Site Shipments

Dear Mr. Rochlin:

In accordance with Paragraph 35 of the CERCLA Unilateral Administrative Order for Removal Action Docket No. CERCLA 10-2013-0116 ("the UAO") issued to FMC Corporation and 40 C.F.R. §300.440, FMC is here providing written notification of the shipment of non-hazardous solid waste material generated during the implementation of the approved Gamma Cap Performance Evaluation Work Plan to a disposal facility outside the FMC Plant Operable Unit. Paragraph 35 requires that prior to shipment to an off-site facility, FMC verify that the off-site facility is operating in compliance with the requirements of Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440, by obtaining a determination from EPA that the proposed receiving facility is operating in compliance with 42 U.S.C. § 9621(d)(3) and 40 C.F.R. § 300.440.

The approved Gamma Cap Performance Evaluation Work Plan includes Standard Operating Procedure (SOP) No.4 – Investigation Derived Waste Management in Appendix C. Solid wastes determined to be non-hazardous pursuant to this SOP will be shipped to the following disposal site:

Bannock County's Fort Hall Canyon Landfill
1500 N. Fort Hall Mine Road
Pocatello, ID 83204

Please be advised that FMC has recently obtained EPA certification that the proposed receiving facility is operating in compliance with the requirements of CERCLA Section 121(d)(3), 42 U.S.C. Section 9621(d)(3) and 40 C.F.R. § 300.440 pursuant to the requirements of CERCLA Unilateral Administrative Order for Removal Action Docket

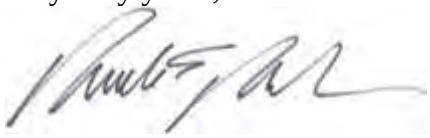
No. CERCLA 10-2010-0170 (the RCRA Pond UAO). Relevant correspondence documenting this certification is attached.

Additionally, when the Remedial Design Data Gap and the Hydrogeological Work Plans (each of which includes SOP No. 4) are approved and subsequently implemented, solid non-hazardous investigation derived wastes will also be shipped to the above referenced disposal facility.

Based on FMC's understanding of the UAO, this notification would appear to fullfill the requirements of Paragraph 35. Please advise if additional actions are warranted.

If you have any questions, please contact me at 215/299-6700.

Very truly yours,



Barbara E. Ritchie
Associate Director, Environment
FMC Corporation

Attachments

cc (as directed by the UAO or requested by EPA):
Bruce Olenick, Idaho Department of Environmental Quality
Kelly Wright, Shoshone-Bannock Tribes
Susan Hanson, Shoshone-Bannock Tribes
Douglas Tanner, Idaho Department of Environmental Quality
Scott Miller, Idaho Department of Environmental Quality

Barbara Ritchie

From: Weigel, Greg [Weigel.Greg@epa.gov]
Sent: Monday, July 15, 2013 11:59 AM
To: Barbara Ritchie
Cc: Douglas.Tanner@deq.idaho.gov; Kelly Wright; susanh@ida.net; brian.english@deq.idaho.gov; Fisher, Carla
Subject: FW: FMC RCRA Pond UAO notification of offsite shipments
Attachments: 2013-06-18 FMC RCRA Pond UAO notification of offsite shipments.pdf

Barbara –

After consultation with the Idaho Department of Environmental Quality, Pocatello Regional Office, it is my understanding that the Bannock County Landfill at 1500 N. Fort Hall Mine Road in Pocatello is an acceptable facility for off-site disposal of non-hazardous waste material generated from implementation of the requirements under the CERCLA Unilateral Administrative Order for Removal Action, Docket No. CERCL:A 10-2010-0170 (UAO). Specifically, the Bannock County Landfill is currently acceptable under the CERCLA Off-Site Rule and Section 41 of the UAO to receive the non-hazardous waste material described in your letter of June 18, 2013.

Please call me if you have any questions.

Greg Weigel
Federal On-Scene Coordinator
EPA Region 10, Emergency Response Unit
950 W. Bannock Street, Boise, ID 83702
208-378-5773 office
208-867-3710 cell

From: Barbara Ritchie [mailto:BARBARA.RITCHIE@fmc.com]
Sent: Tuesday, June 18, 2013 11:53 AM
To: Weigel, Greg; Douglas.Tanner@deq.idaho.gov
Subject: FMC RCRA Pond UAO notification of offsite shipments

Please see attached. I look forward to your approval pursuant to section 41 of the order. If you have any questions, please advise.

Barbara Ritchie

From: Thomas.Mullican@deq.idaho.gov
Sent: Tuesday, July 02, 2013 3:08 PM
To: Douglas.Tanner@deq.idaho.gov; Weigel.Greg@epamail.epa.gov
Cc: Barbara Ritchie; theresem@bannockcounty.us; danc@co.bannock.id.us; Tom.Hepworth@deq.idaho.gov; SPew@siph.idaho.gov
Subject: RE: FMC RCRA Pond UAO notification of offsite shipments

All,

I am the contact in the Pocatello Regional Office of the Idaho Department of Environmental Quality for information regarding municipal solid waste facilities. The purpose of this message is to verify that the Bannock County Fort Hall Mine Landfill maintains compliance with the design, operations, and other requirements of the Idaho Solid Waste Facilities Act, Idaho Code Title 39 Chapter 74. Please keep in mind that managers of municipal solid waste landfills may, at their discretion, accept or decline wastes delivered to their facilities. Therefore, I recommend contacting Therese Marchetti, Regulatory Compliance Manager for the Fort Hall Mine Landfill, if there are questions regarding wastes to be disposed at the facility. The telephone number for the landfill administration office is 208-236-0607.

Tom

Thomas W. Mullican
Hydrogeologist/Solid Waste

Idaho Department of Environmental Quality
444 Hospital Way #300
Pocatello, ID 83201
Phone: 208-236-6160
Fax: 208-236-6168
Email: Thomas.Mullican@deq.idaho.gov

From: Douglas Tanner
Sent: Tuesday, July 02, 2013 12:32 PM
To: Thomas Mullican; 'Greg Weigel'
Cc: Barbara Ritchie (barbara.ritchie@fmc.com)
Subject: FW: FMC RCRA Pond UAO notification of offsite shipments

Tom,

Could you send a response email letting us know if the Bannock County landfill is in compliance with the Solid Waste regulations? dt

---

From: Barbara Ritchie [mailto:BARBARA.RITCHIE@fmc.com]
Sent: Tuesday, June 18, 2013 11:53 AM
To: 'Greg Weigel'; Douglas Tanner
Subject: FMC RCRA Pond UAO notification of offsite shipments

Please see attached. I look forward to your approval pursuant to section 41 of the order. If you have any questions, please advise.

FMC Idaho LLC, Pocatello, Idaho

FMC OU REMEDIAL DESIGN

Draft
PERFORMANCE STANDARDS VERIFICATION PLAN

March 2014
Revised January 2015

MWH

TABLE OF CONTENTS

TABLES (following text in each section)

FIGURES (following tables in each section)

ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
COC	Contaminant of Concern
EMF	Eastern Michaud Flats
EPA	Environmental Protection Agency
ET	Evapotranspiration/Evapotranspirative
FMC	FMC Corporation
FMC OU	FMC Operable Unit
IRODA	Interim Record of Decision Amendment
MCL	Maximum Contaminant Levels
OM&M	Operation, Maintenance and Monitoring
P4	Elemental Phosphorus
PSVP	Performance Standards Verification Plan
RA	Remedial Area
RA	Remedial Action
RAO	Remedial Action Objectives
RBC	Risk-Based Concentration
RD	Remedial Design
SUA	Southern Undeveloped Areas
UAO	Unilateral Administrative Order
WUA	Western Undeveloped Areas

1.0 INTRODUCTION

This draft Soil Remedy Performance Standards Verification Plan (PSVP) presents the planned performance monitoring methods for soil remedial action activities at the FMC Operable Unit (FMC OU) of the Eastern Michaud Flats (EMF) Superfund Site. The FMC OU is located in Power County in Idaho, approximately 2.5 miles northwest of Pocatello. The EMF Site includes two adjacent production facilities, the former FMC Corporation elemental phosphorus (P4) processing plant that ceased operation in 2001 and a phosphate fertilizer processing facility currently operated by the J.R. Simplot Company. The EMF Site is shown on Figure 1 and encompasses both the FMC and Simplot plants and surrounding areas (Off-Plant OU) affected by releases from these facilities.

This PSVP is one of many work elements being conducted pursuant to the remedial actions set forth in the Interim Record of Decision Amendment for the EMF Superfund Site FMC Operable Unit (IRODA; EPA, 2012) and a Remedial Design/Remedial Action (RD/RA) Unilateral Administrative Order (UAO, EPA, 2013) issued by EPA on June 10, 2013 that became effective on June 20, 2013. This PSVP has been prepared to present how to determine that performance standards (e.g., Remedial Action Objectives [RAOs]) defined in the IRODA have been achieved. The performance standards include both general and specific standards applicable to the selected remedy work elements and associated work components. The soil remedial action as defined in the IRODA includes capping or covering and in-place management of soil and fill material at the FMC OU, removal and treatment of residual wastes in storm drain piping, and excavation of contaminated surface soil from Supplemental Remedial Investigation Addendum (SRIA) Parcel 3 of FMC's Northern Properties, also known as RA-J. A separate PSVP[1] for the soil excavation at RA-J and storm drain piping cleaning in RA-A was submitted to and approved by EPA. The scope of this PSVP accordingly is limited to the capping of soil and fill material at the FMC OU. A more detailed description of the selected remedy for the FMC OU is presented in Section 2.4.2 of the *Final Remedial Design Work Plan* (MWH, 2013).

This PSVP may be updated, modified, or appended during the progression of construction of the soil remedial action activities based upon new information. Any revisions to this PSVP will be submitted to the EPA for review and approval.

[1] Appendix H to the *Remedial Action Work Plan – Site-Wide Grading Phase* submitted to EPA in September 2014.

1.1 PROJECT LOCATION

The EMF Superfund Site includes two adjacent production facilities, the former FMC Corporation P4 processing plant that ceased operation in 2001 and a phosphate fertilizer processing facility currently operated by the J.R. Simplot Company. The EMF Site encompasses both the FMC and Simplot plants and surrounding areas affected by releases from these facilities. The FMC OU of the EMF, consisting of the FMC Plant Site and other FMC-owned properties at the EMF Site, is on privately-owned fee land, most of which is located within the external boundaries of the Fort Hall Indian Reservation. As shown on Figure 2, the FMC Plant OU occupies approximately 1,450 acres in Power County, Idaho approximately 2.5 miles northwest of the city of Pocatello and consists of the FMC Plant Site (i.e., the former operating facility located south of Highway 30), the Southern and Western Undeveloped Areas (SUA and WUA) that are also located south of Highway 30, and FMC-owned Northern Properties located north of Highway 30. The easternmost portions of the FMC OU are located outside the reservation boundary.

1.2 PROJECT DESCRIPTION

The selected remedy for the FMC OU addresses metals, radionuclides, and other contaminants of concern (COCs) identified in soils, fill, and groundwater at the FMC OU. Additional details of the selected remedy can be found in the *Final Remedial Design Work Plan for the FMC OU* (MWH, 2013). The soil remedial action plan and soil remedial areas (RAs) are shown in Figure 3. Components of the selected remedy for soil remediation are addressed in this PSVP and include the following:

- Initial site grading to support site-wide stormwater management and prepare the subgrade for construction of gamma and evapotranspiration (ET) caps.
- Placement of ET caps over areas that contain residual fill materials and/or soil mixed with fill materials (such as phossy solids, precipitator solids, kiln scrubber solids, industrial waste water sediments, calciner pond solids, calcined ore, and slag) to: (1) prevent migration of contaminants to groundwater, preventing the infiltration of rainwater/snowmelt, and (2) prevent direct contact with contaminants by current and or future workers. ET caps will be placed over the following remediation areas (RAs): RA-B, RA-C, RA-D, RA-E, RA-F1, RA-F2, RA-H, and RA-K.
- Placement of approximately 12 inches of soil cover (gamma cap) over: (1) areas containing slag fill, (2) ore stockpiles, and (3) the former Bannock Paving areas to prevent gamma radiation and fugitive dust exposure to potential future workers. Gamma caps will be placed over RA-A, RA-F, and RA-G.

1.3 ORGANIZATION OF THE PSVP

The remainder of this PSVP comprises the following sections:

- Section 2.0 describes Remedial Action Objectives and Performance Standards.
- Section 3.0 presents the Performance Standards Verification Plan.
- Section 4.0 presents the proposed reporting requirements and plan.
- Section 5.0 provides references.

Tables and figures are contained together following the document text in each section.

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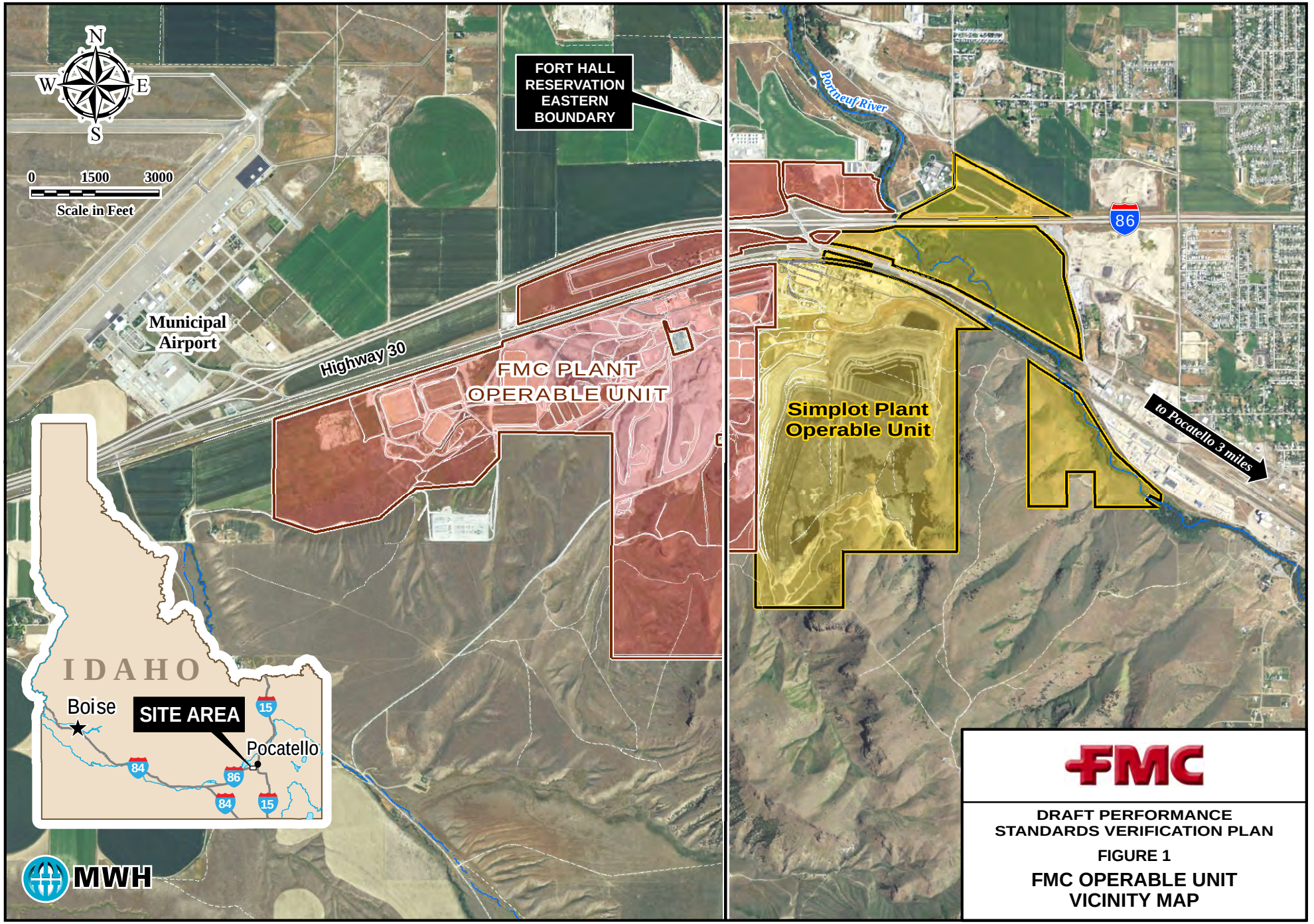

FMC

DRAFT PERFORMANCE STANDARDS VERIFICATION PLAN

FIGURE 1

FMC OPERABLE UNIT VICINITY MAP

DRAWN BY D. Severson

6 Jan 2015

I:\projects\FMCIdaho\FMC_DRAFTFINAL_Perf Stand Verif Plan\FIGURES\Fig 2_FMC OU Site Plan_newRA_Jan2015.mxd

Legend

- FMC OU Boundary
- Remediation Area
- Simplot Property Boundary
- Existing capped areas (~85 acres)

FORT HALL RESERVATION EASTERN BOUNDARY

RA-I
RA-I
RA-J
RA-J
RA-I
RA-I
RA-K
RA-G
RA-B
RA-A
RA-E
RA-A
RA-C
FMC Plant Site
RA-D
RA-F
RA-G
RA-D
RA-E
RA-H East
RA-H West

86

WESTERN UNDEVELOPED AREA

SOUTHERN UNDEVELOPED AREA

N
W
E
S

0 700 1400
Feet

MWH

FMC

DRAFT PERFORMANCE STANDARDS VERIFICATION PLAN

FIGURE 2

FMC OPERABLE UNIT SITE PLAN

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9 Jan 2015

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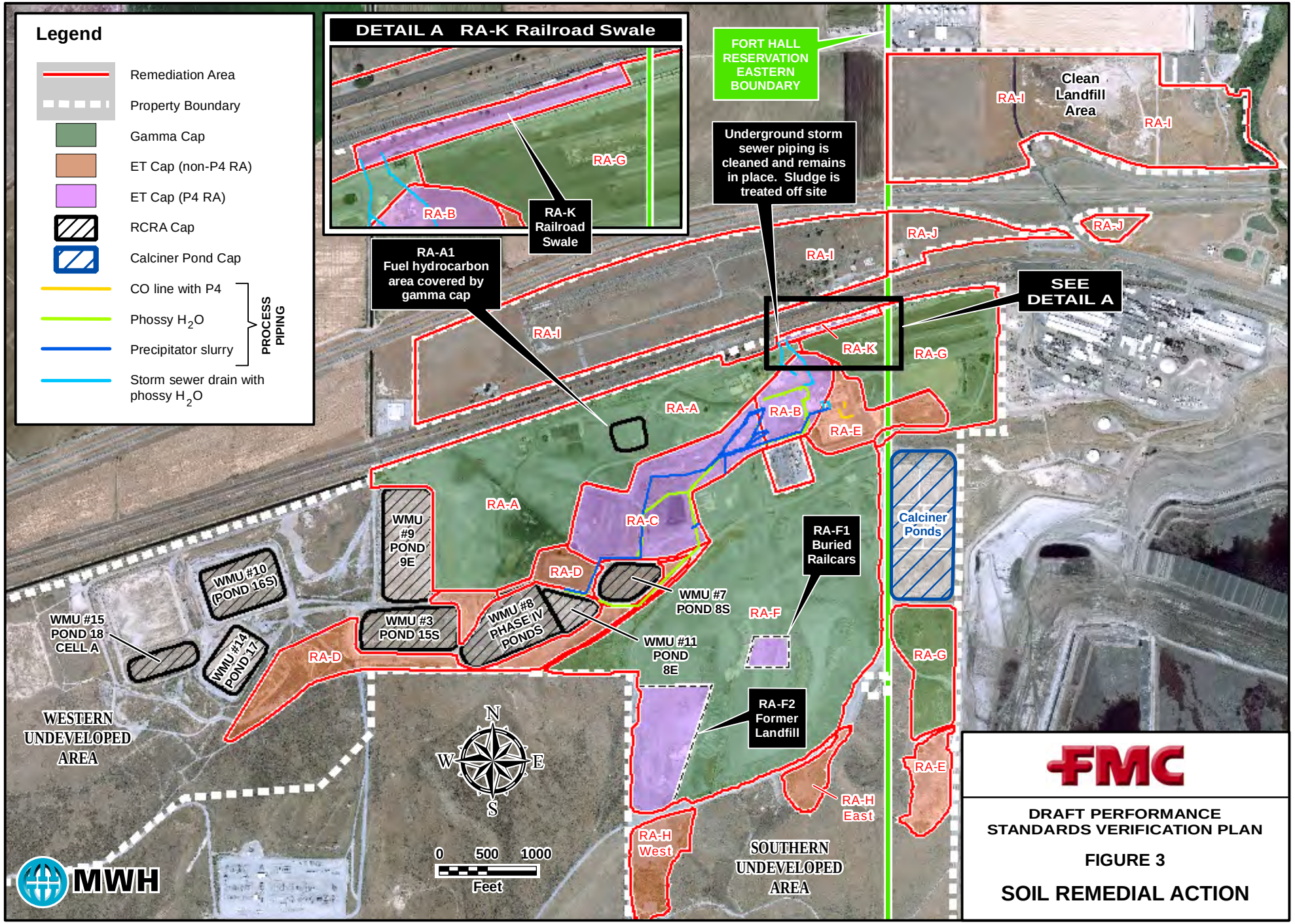


2.0 REMEDIAL ACTION OBJECTIVES AND PERFORMANCE STANDARDS

The purpose of the PSVP is to link post-remedy monitoring to the RAOs presented in the IRODA. Furthermore, monitoring activities and metrics presented in the PSVP are to be evaluated to determine when performance standards have been met and, in certain cases, monitoring frequency can be reduced or stopped. Below are summaries of project RAOs and the description of performance standards.

2.1 REMEDIAL ACTION OBJECTIVES

The RAOs for contaminated media at the FMC OU within the scope of this PSVP include the following elements:

1. Prevent human exposure via all potential pathways (external gamma radiation exposure, inhalation of radon in potential future buildings, incidental soil ingestion, dermal absorption, and thereby resulting in an unacceptable risk to human health assuming current or reasonably fugitive dust inhalation) to soils and solids contaminated with COCs anticipated future land use.

2. Minimize generation of and prevent exposure to phosphine and other gases that represent an unacceptable risk to human health and the environment.

3. Prevent direct exposure to elemental phosphorus under conditions that may cause it to spontaneously combust, posing a fire hazard as well as resultant air emissions that represent a significant threat to human health or the environment, and prevent such conditions.

4. Reduce the release and migration of COCs to the groundwater from FMC OU sources resulting in concentrations in groundwater exceeding risk-based concentrations (RBCs) or applicable or relevant and appropriate requirements (ARARs), or site-specific background if RBCs or ARARs are more stringent than background.

2.2 DESCRIPTION OF PERFORMANCE STANDARDS

The performance standards for soil remedy elements are defined in Section 4.0 of the *Final Remedial Design Work Plan*. The PSVP in Section 3 contains descriptions of the remedial objectives, monitoring schedules, and the specific measurements and metrics designed to be evaluated periodically for each remedy component within the scope of this PSVP to assure that each performance standard will be met, and to identify when performance standards have been met.

3.0 PERFORMANCE STANDARDS VERIFICATION PLAN

The PSVP has been developed to provide the performance metrics and the monitoring plan for each remedy component within the scope of this PSVP and to define how performance metrics will be evaluated. The routine inspections and measurements presented here for post-soil remedial action monitoring for the ET and gamma caps are also presented in the operation and maintenance activities performed under the project *Operation, Maintenance and Monitoring* (OM&M) *Plan*. The PSVP does not describe the standard operating procedures for the measurements/inspections, which are described in the OM&M Plan, but rather describes how this information will be evaluated to determine whether performance standards are being met. The OM&M Plan also contains the Field Sampling Plan (FSP) and Quality Assurance Project Plan (QAPP).

Another objective of the PSVP is to ensure that the monitoring requirements of each remedy component result in thorough, practical and defensible information regarding performance while remaining efficient with respect to the cost of data collection/inspections. Finally, the performance monitoring approach is designed to lead toward long-term optimization of the program by identifying when specific standards have been met, and monitoring can be reduced or stopped.

3.1 EVAPOTRANSPIRATIVE (ET) CAPS

The performance monitoring methods for ET caps in non-P4 areas and in areas where P4 is present or suspected to be present are similar, with ET caps in areas where P4 is or is suspected to be present subject to additional monitoring. ET cap monitoring will be performed through routine inspections and routine measurements/surveys. Additionally, contingent monitoring metrics have been added to the PSVP for ET caps to be followed in the event of a 25-year, 24-hour storm or a seismic event. A 25-year, 24-hour storm event is defined as 2.1 inches (or more) of precipitation within a 24-hour period (NOAA, 1973) as reported for the Pocatello airport weather station. A triggering seismic event is defined as an event that (1) exceeds a magnitude 5.0 on the Richter Scale with an epicenter within a 20-mile radius as reported by USGS, or (2) exceeds a magnitude 6.0 on the Richter Scale with an epicenter within a 50-mile radius as reported by USGS. The performance monitoring strategies and approaches for these caps are summarized in Tables 1 and 2, and are described briefly in the following sections.

The objectives of the ET caps are to 1) prevent exposure via all viable pathways (external gamma radiation, incidental soil ingestion, dermal absorption, and fugitive dust inhalation) to soils and solids contaminated with COCs that would result in an unacceptable risk to human health under current or reasonably anticipated future land use; 2) reduce the release and

migration of COCs to the groundwater from facility sources that may result in concentrations in groundwater exceeding RBCs or chemical-specific ARARs, specifically Maximum Contaminant Levels (MCLs), or reduce to site-specific background concentrations if those are higher, and 3) for the RAs with known or suspected P4 in the subsurface, prevent the direct exposure to elemental phosphorus under conditions that may spontaneously combust, posing a fire hazard or resultant air emissions that represent a significant risk to human health and the environment, and minimize generation and prevent exposure to phosphine and other gases at levels that represent a significant risk to human health and the environment.

3.1.1 Performance Standards for ET Caps in Non-P4 Remedial Areas

The performance standards for ET caps in non-P4 areas are summarized in Table 1. The post-remedial monitoring and maintenance elements shown in Table 1 apply to ET caps over areas RA-D, RA-E, and RA-H that do not contain P4 (see Figure 3). An ET cover system relies on the hydraulic properties of the cover material (cap soil layer) to store water in the cap soil pore space for subsequent evaporation and transpiration by vegetation growing on the cover. Therefore, the monitoring of cap soil thickness, stormwater or wind soil erosion, rodent damage, and vegetative cover on the cap are all important.

The stated performance standard for ET caps is the successful implementation of the final design, which will be evaluated by the following metrics (see Table 1):

1. Routine annual or semi-annual inspection of cap topsoil depth indicators; signs of stormwater erosion/damage, signs of rodent and/or insect damage, and stormwater diversion controls.

2. Contingent monitoring for erosion/damage to the cap or stormwater diversion controls to be implemented within seven days after a 25-year, 24-hour storm or a seismic event.

3. Routine annual measurements of topsoil depth using depth indicators and an annual vegetation survey.

The unacceptable conditions (action triggers) for each of these monitoring metrics are summarized in Table 1 along with the associated response action. These metrics are discussed in more detail below.

3.1.1.1 *Performance Metrics for Routine ET Cap Inspections*

The following routine ET cap inspections and associated performance metrics are listed below. This monitoring is based upon observation of cap conditions rather than measurements.

- Annually inspect the ET cap topsoil depth indicators to determine if the indicators are damaged, missing, or obscured by topsoil. Topsoil depth indicators will typically be placed at areas on the ET cap most susceptible to wind and water erosion, i.e., on the cap crowns, ridges, and side-slopes. Typical density for placement of topsoil depth indicators will be one (1) per three (3) acres. Any damaged or missing topsoil depth indicator will be replaced as soon as practicable (i.e., repairs will be commenced within 7 days, except if frozen soil/snow cover/muddy conditions exist such that the cap surface could be damaged during implementation or repairs are not feasible due to ground conditions). All required repairs will be summarized and reported annually.

- Semi-annually inspect the ET cap surface for stormwater/snowmelt runon/runoff damage. This will be performed after the spring snowmelt (in April or May) which usually produces peak runoff for the year and in the fall (September or October) after the peak thunderstorm season is over. This monitoring will involve visually inspecting the entire cap surface to determine if there is evidence of excessive erosion from runoff or significant deposition of sediment (runon). Any significant erosion will be repaired (filled in with topsoil) and/or accumulated sediment will be removed as soon as practicable (i.e., repairs will be commenced within 7 days, except if frozen soil/snow cover/muddy conditions exist such that the cap surface could be damaged during implementation or repairs are not feasible due to ground conditions). All required repairs will be summarized and reported annually.

- Semi-annually inspect the ET cap stormwater conveyance ditches and/or diversion berms for signs of excessive erosion, deposition of sediments, accumulation of debris, or other indications that the stormwater management system design on the ET cap may be compromised. This will be performed after the spring snowmelt (in April or May) and in the fall (September or October). This inspection will involve examining the stormwater conveyances/diversions to determine if the stormwater management design is functioning as planned. Any significant erosion will be repaired (filled in with topsoil) and/or accumulated sediment/debris will be removed as soon as practicable (i.e., repairs will be commenced within 7 days, except if frozen soil/snow cover/muddy conditions exist such that the cap surface could be damaged during implementation or repairs are not feasible due to ground conditions). All required repairs will be summarized and reported annually.

- Semi-annually inspect the ET cap surface for rodent and/or insect damage. This will be performed in late spring (April or May) and again in the fall (September or October) each year. This monitoring will involve visually inspecting the entire cap surface to determine if there is evidence of excessive rodent/insect damage. Rodent damage will be evident by mounds of soil on the cap surface indicating rodent digging/tunneling under the cap surface. Insect damage will be evident by areas of distressed or absent vegetation indicating excessive insect feeding on the cap plants. Any significant damage to the cap by burrowing rodents will be repaired (filled in with topsoil) as soon as practicable (i.e., repairs will be commenced within 7 days, except if frozen soil/snow cover/muddy

conditions exist such that the cap surface could be damaged during implementation or repairs are not feasible due to ground conditions). If rodent damage is widespread, a rodent trapping/poisoning program will be initiated as soon as conditions permit, typically during spring, summer or fall months. Any significant damage to cap vegetation will be assessed for potential action (e.g., spraying insecticides or replanting). This assessment will be made during the following growing season. All required repairs will be summarized and reported annually.

3.1.1.2 *Storm Event ET Cap Inspections*

The following ET cap inspections will be performed after a 25-year, 24-hour storm event. This monitoring is also based upon observation of cap conditions rather than measurements.

- Within seven (7) days of a 25-year, 24-hour storm event, inspect the cap surface for stormwater runon/runoff damage. This monitoring will involve visually inspecting the entire cap surface to determine if there is evidence of excessive erosion from runoff or significant deposition of sediment (runon). This monitoring will also inspect the stormwater conveyance ditches and diversion berms for signs of excessive erosion, deposition of sediments, accumulation of debris, or other indications that the stormwater management system design may be compromised. Any significant erosion will be repaired (filled in with topsoil) and/or accumulated sediment will be removed as soon as practicable (i.e., repairs will be commenced within 7 days, except if frozen soil/snow cover/muddy conditions exist such that the cap surface could be damaged during implementation or repairs are not feasible due to ground conditions). All required repairs will be summarized and reported annually.

3.1.1.3 Routine *ET Cap Measurements*

The following routine ET cap measurements will be performed.

- Annually inspect the cap vegetation cover to ensure that significant areas do not become devoid of vegetation. This monitoring will typically be performed at the end of the growing season (September or October) and will involve walking a specified number of "random" transects across the cap surface making visual inspections as well as "sampling" ten (10) representative areas (9 ft^2 plots) along the transect. The number of viable plants will be counted within each plot to determine the "plant density". If 33% or more of the transect plots in a designated area have a "plant density" less than 0.5 plants per square foot, then maintenance activity (i.e., re-seeding) will be necessary for that area. All required repairs will be summarized and reported annually.

- Annually take a measure of the depth of topsoil at each topsoil depth indicator. If 50% or more of the topsoil indicators in a designated area have topsoil loss of greater than 5 inches, then maintenance activity (i.e., addition of new topsoil and re-seeding) will be necessary for that area. All required repairs will be summarized and reported annually.

3.1.2 Performance Standards for ET Caps in P4 Remedial Areas

The PSVP for ET caps in areas with P4 is summarized in Table 2. The post-remedial monitoring and maintenance elements shown in Table 2 apply to ET caps over areas RA-B, RA-C, RA-K, RA-F1, and RA-F2 where elemental phosphorous may exist (see Figure 3).

The stated performance standard for ET caps is the successful implementation of the final design, which will be evaluated by the same performance standards and metrics listed above for non-P4 areas, with the addition of the following monitoring elements:

- Monitoring one settlement monument that will be re-established for the Slag Pit Sump at the same planar coordinates and at the elevation of the ground surface level of the ET cap at that location within RA-B; and

- Monitoring for phosphine gas within the capillary break layer (and above the surface of the cap, if triggered) and soil chemistry changes due to potential decomposition of phosphine within the soil (if triggered).

The unacceptable conditions (action triggers) for each of these monitoring metrics are summarized in Table 2 along with the associated response action. These metrics are discussed in more detail above (for monitoring metrics that are the same as those for ET caps in non-P4 remedial areas) and below (for monitoring metrics that are unique to ET caps in P4 remedial areas).

3.1.2.1 *Performance Metrics for Phosphine (PH3) Monitoring on ET Caps*

The 2010 site-wide gas assessment (as reported in the *Site-Wide Gas Assessment Report for the FMC Plant OU* [MWH, 2010a]) clearly demonstrated that PH3 gas (and other gases of concern) has a much lower generation and emanation rate from the CERLCA areas with P4 than historically measured at the RCRA ponds. The conceptual model for the fate and transport of gases in the ET-capped CERCLA areas with P4 is as follows:

- Because of the methods utilized to place and store plant wastes within the CERCLA areas, the potential for PH3 generation is much lower than in the RCRA Ponds.

- Gases generated (primarily PH3) within the CERCLA RAs (areas containing P4, phossy water solids, and/or precipitator slurry solids) are currently covered with un-compacted fill materials - primarily slag. These materials are permeable to gases such that PH3 generated within these areas is expected to remain in the subsurface near the area of generation until oxidized by air within the fill material matrix. In other words, the gases would not be expected to significantly migrate laterally within the fill materials or into ambient air.

- Once covered with an ET cap, any gases generated would be expected to accumulate within the capillary break layer. This being the case, the most likely location to detect PH3 would be in the capillary break layer. As the capillary break layer does not "daylight" anywhere on the ET cap, there is no obvious point of emission of these gases to the ambient air other than through slow migration through the ET cap soil layer. Given the expected short life of PH3 in the presence of oxygen, oxidation of the PH3 within the ET cap system is expected, eliminating or at a minimum significantly reducing any release of PH3 to the ambient air.

Based upon this conceptual model, Figure 4 presents a flowchart showing the overall PH3 monitoring strategy for the CERCLA areas with ET caps over areas known or suspected of containing P4. The following are the primary elements of the monitoring strategy:

- **Semi-annual monitoring**. The CERCLA areas are not expected to have significant accumulation and/or concentration of PH3 under the ET cap as is experienced at some of the RCRA Ponds. As such, the variability of PH3 concentrations experienced at the RCRA Ponds is also not expected at the CERCLA areas. Therefore, semi-annual monitoring for PH3 is proposed for the CERCLA areas. If PH3 is detected outside the ET caps, more frequent monitoring would be considered.

- **Soil gas as the primary monitoring component**. As any PH3 generation and/or accumulation within the CERCLA areas could be first detected at the capillary break layer of the ET cap, soil gas monitoring within the capillary break layer is proposed as the primary monitoring method. Soil gas probes would be installed above known or suspected areas of P4. The soil gas probes would be designed and placed to measure gases within the capillary break layer as shown in Figure 5.

- **Soil gas action level**. If any soil gas monitoring point exceeds an action level of 0.05 ppm PH3, as measured using methods and equipment consistent with the RCRA Pond monitoring, the following actions will be triggered:
    - First, the soil gas monitoring location exceeding the action level will be sampled again within five (5) business days to confirm the exceedance. This re-sampling is appropriate as there are several known interferences (i.e., engine exhaust, sulfur oxides, etc.) which can give a false positive reading on the PH3 monitor.
    - If the re-sample of the soil gas probe remains above the action level, then additional sampling would be performed to determine if PH3 gas is escaping the ET cap into the ambient air. This additional ambient air sampling would involve taking Industrial Hygiene (IH) ambient air samples (4 feet above the ground surface) at and around the soil gas probe, performing a surface scan over the area, and taking ambient air samples in nearby low-lying areas (if nearby low-lying areas exist). These measurements would be performed using methods and equipment consistent with the RCRA pond monitoring.
    - Also, if the re-sample of the soil gas probe remains above the action level, then sampling of critical ET cap soil properties will be performed. Samples of the ET

cap soil (top 12 inches) would be monitored for soil pH in the immediate area of the soil gas probe with the exceedance. These soil pH results would be compared to the baseline soil pH as reported in *Remedial Design Data Gap Report for the FMC Plant OU – January 2014* to determine if the pH is being significantly altered. If the measured soil pH is outside the range of 5.0 to 9.0, then soil density measurements will be made in the same area. Soil densities in the same area (to a depth of 24 inches) would be measured and compared to the soil density specifications of the RD. If measured soil density is outside the range of 80% to 90% of maximum dry density, a work plan will be developed and submitted to EPA proposing further action(s) to evaluate the changes in the soil properties.

- **Ambient air monitoring action level**. If any ambient air monitoring (IH ambient air, surface scan, or low-lying areas) exceeds an action level of 0.05 ppm PH3, and is confirmed to be PH3 (as opposed to known interferences such as engine exhaust and sulfur oxides), the following actions will be triggered:
    - First, if any of the ambient air monitoring equals or exceeds 1.0 ppm, fenceline monitoring will be initiated within 15 minutes of a confirmed PH3 detection at or above 1.0 ppm. The fenceline monitoring (per the RCRA Pond UAO Air Monitoring Plan) would be performed using methods and equipment consistent with the RCRA pond monitoring.
    - If any ambient air monitoring exceeds an action level of 0.05 ppm PH3 (but is less than 1.0 ppm PH3), the ambient air monitoring will be re-sampled within 2 hours to confirm the initial result.
    - If the re-sample of the ambient air remains above the action level, then an enhanced PH3 monitoring program would be proposed to EPA for that CERCLA area.

- **Enhanced PH3 monitoring program.** A confirmed ambient air monitoring result exceeding the action level of 0.05 ppm PH3 would require submittal of an enhanced PH3 monitoring program. This enhanced monitoring may include one or more of the following elements:
    - Increased monitoring frequency;
    - Additional soil gas monitoring locations; and
    - Additional ambient air and/or surface scan monitoring.

3.1.2.2 *Performance Metrics for Settlement Monitoring on the Slag Pit Sump*

The slag pit sump is incorporated into the ET cap within RA-B. The objective of the cap settlement monitoring program at the slag pit sump is to determine if excessive settlement or movement of slag pit sump cap materials of construction is taking place. The inspection/monitoring for the slag pit sump (in addition to the other inspections/monitoring associated with the ET cap on RA-B) include the following:

- Annually inspect the slag pit sump settlement monument to determine if the settlement monument is clear, accessible, and undamaged during the displacement measurement surveys described below. Any damaged or missing settlement monuments will be replaced as soon as practicable (i.e., repairs will be commenced within 7 days, except if frozen soil/snow cover/muddy conditions exist such that the cap surface could be damaged during implementation or repairs are not feasible due to ground conditions). All required repairs will be summarized and reported annually.

- Annually survey the elevation and coordinates of the slag pit sump settlement monument to determine whether it has changed position either vertically or horizontally. Elevation and displacement measurements will be plotted cumulatively versus time. The time scale will be in logarithm of time or square root of time. The settlement curve will be kept up to date with each reading.

- The area around the slag pit sump also will be checked for visible subsidence during run-on and/or run-off erosion monitoring or other monitoring and/or maintenance in the area and also after local seismic events. The criteria for visible subsidence requiring settlement monitoring has been established as an area of 100 square feet (a 10-foot by 10-foot square or 11-foot diameter area) or more where precipitation ponding is observed or could occur to a depth of 1 inch of water or greater. A triggering seismic event is defined as an event that (1) exceeds a magnitude 5.0 on the Richter Scale with an epicenter within a 20-mile radius as reported by USGS or (2) exceeds a magnitude 6.0 on the Richter Scale with an epicenter within a 50-mile radius as reported by USGS.

3.2 GAMMA CAPS

The performance monitoring methods for gamma caps are similar to those for ET caps, with a few differences. Gamma cap monitoring will be performed through routine inspections and routine measurements/surveys. Additionally, contingent monitoring metrics have been added to the PSVP for gamma caps to be followed in the event of a 25-year, 24-hour storm or a seismic event. A 25-year, 24-hour storm event is defined as 2.1 inches (or more) of precipitation within a 24-hour period (NOAA, 1973) as reported for the Pocatello airport weather station. A triggering seismic event is defined as an event that (1) exceeds a magnitude 5.0 on the Richter Scale with an epicenter within a 20-mile radius as reported by USGS, or (2) exceeds a magnitude 6.0 on the Richter Scale with an epicenter within a 50-mile radius as reported by USGS. The performance monitoring strategies for these caps are summarized in Table 3, and are described briefly below.

The objective of the gamma caps is to prevent exposure via all viable pathways (external gamma radiation, incidental soil ingestion, dermal absorption, and fugitive dust inhalation) to soils and solids contaminated with COCs that would result in an unacceptable risk to human health under current and reasonably anticipated future land use.

3.2.1 Performance Standards for Gamma Caps

The PSVP for gamma caps is summarized in Table 3. The post-remedial monitoring and maintenance elements shown in Table 3 apply to gamma caps over areas RA-A, RA-F, and RA-G (see Figure 3).

The stated performance standard for gamma caps is the successful implementation of the final design, which will be based on the Gamma Cap Performance Evaluation described in Section 3.2.2 of the Remedial Design Work Plan (MWH, 2013). Achievement of the RAOs as well as the soil cleanup level for radium-226 will be evaluated by the following metrics (see Table 3):

1. Routine annual or semi-annual inspection for signs of erosion, rodent and insect damage, and/or stormwater conveyance/diversion controls.

2. Contingent monitoring for erosion/damage to the cap or stormwater diversion controls to be implemented within seven days after a 25-year, 24-hour storm or a seismic event.

3. Routine measurements consisting of gamma emission surveys/measurements to evaluate achievement of the radium-226 soil cleanup level. FMC prepared a revised GCWPA (Revision 1) for submittal to EPA on December 12, 2012. Field work is scheduled to be conducted in March 2015, pending EPA approval of the revised GCWPA and contingent on acceptable weather and surface conditions. Frequency, action triggers and response actions will be based on the gamma emission survey method to be developed/detailed after completion of gamma cap addendum study.

The unacceptable conditions (action triggers) for each of these monitoring metrics are summarized in Table 3 along with the associated response action. These metrics are discussed in more detail below.

3.2.1.1 *Performance Metrics for Routine Gamma Cap Inspections*

The following routine gamma cap inspections and associated performance metrics are listed below. This monitoring is based upon observation of cap conditions rather than measurements.

- Semi-annually inspect the gamma cap surface for stormwater/snowmelt runon/runoff damage. This will be performed after the spring snowmelt (in April or May) which usually produces peak runoff for the year and in the fall (September or October) after the peak thunderstorm season is over. This monitoring will involve visually inspecting the entire cap surface to determine if there is evidence of excessive erosion from runoff or significant deposition of sediment (runon). Any significant erosion will be repaired (filled in with topsoil) and/or accumulated sediment will be removed as soon as practicable (i.e., commence repairs within 7 days except if frozen soil/snow cover/muddy conditions exist such that the cap surface could be damaged during implementation or

repairs are not feasible due to ground conditions). All required repairs will be summarized and reported annually.

- Semi-annually inspect the gamma cap stormwater conveyance ditches and/or diversion berms for signs of excessive erosion, deposition of sediments, accumulation of debris, or other indications that the stormwater management system on the gamma cap may be compromised. This will be performed after the spring snowmelt (in April or May) and in the fall (September or October). This inspection will involve examining the stormwater conveyances/diversions to determine if the stormwater management design is functioning as planned. Any significant erosion will be repaired (filled in with topsoil) and/or accumulated sediment/debris will be removed as soon as practicable (i.e., repairs will be commenced within 7 days, except if frozen soil/snow cover/muddy conditions exist such that the cap surface could be damaged during implementation or repairs are not feasible due to ground conditions). All required repairs will be summarized and reported annually.

- Semi-annually inspect the gamma cap surface for rodent and/or insect damage. This will be performed in late spring (April or May) and again in the fall (September or October) each year. This monitoring will involve visually inspecting the entire cap surface to determine if there is evidence of excessive rodent/insect damage. Rodent damage will be evident by mounds of soil on the cap surface indicating rodent digging/tunneling under the cap surface. Insect damage will be evident by areas of distressed or absent vegetation indicating excessive insect feeding on the cap plants. Any significant damage to the cap by burrowing rodents will be repaired (filled in with topsoil) as soon as practicable (i.e., repairs will be commenced within 7 days, except if frozen soil/snow cover/muddy conditions exist such that the cap surface could be damaged during implementation or repairs are not feasible due to ground conditions). If rodent damage is widespread, a rodent trapping/poisoning program will be initiated as soon as conditions permit, typically during spring, summer or fall months. Any significant damage to cap vegetation will be assessed for potential action (e.g., spraying insecticides or replanting). This assessment will be made during the following growing season. All required repairs will be summarized and reported annually.

3.2.1.2 *Storm Event Gamma Cap Inspections*

The following gamma cap inspections will be performed after a 25-year, 24-hour storm event. This monitoring is also based upon observation of cap conditions rather than measurements.

- Within seven (7) days of a 25-year, 24-hour storm event, inspect the gamma cap surface for stormwater runon/runoff damage. This monitoring will involve visually inspecting the entire cap surface to determine if there is evidence of excessive erosion from runoff or significant deposition of sediment (runon). This monitoring will also inspect the stormwater conveyance ditches and diversion berms for signs of excessive erosion, deposition of sediments, accumulation of debris, or other indications that the stormwater management system design may be compromised. Any significant erosion will be

repaired (filled in with topsoil) and/or accumulated sediment will be removed as soon as practicable (i.e., repairs will be commenced within 7 days, except if frozen soil/snow cover/muddy conditions exist such that the cap surface could be damaged during implementation or repairs are not feasible due to ground conditions). All required repairs will be summarized and reported annually.

3.2.1.3 Gamma Cap Gamma Emission Surveys/Measurements

FMC will develop the protocol for conducting emission surveys and measurements for verifying achievement of the gamma cap performance standards after it completes the gamma cap addendum study. Assuming EPA approval of the study work plan in the near future, FMC anticipates that it will conduct that study in the spring of 2015.

3.3 SITE-WIDE STORMWATER RUNOFF MANAGEMENT

Post-remedy performance monitoring for site-wide stormwater runoff will be performed through routine inspections. Similar to monitoring the ET and gamma caps, contingent monitoring metrics have been added to the PSVP to be followed in the event of a 25-year storm, 24-hour storm or a seismic event. The performance monitoring strategies for site-wide stormwater runoff are summarized in Table 4.

The objectives of the site-wide stormwater management and grading plans are to 1) establish the elevation contours for the subgrade to receive the ET and gamma caps, 2) design a site-wide stormwater capture, conveyance and detention system that minimizes erosion and diverts water from the planned ET and gamma covers and existing capped areas, and 3) integrate the stormwater management system and grading plans with the existing and planned caps, access roads, infrastructure and monitoring systems.

3.3.1 Performance Standards for Site-Wide Stormwater Runoff Management

The PSVP for site-wide stormwater runoff is summarized in Table 4. The post-remedial monitoring and maintenance elements shown in Table 4 apply to site-wide stormwater runoff management infrastructure.

The stated performance standard for site-wide stormwater runoff is that the site-wide stormwater management and grading plans establish the subgrade and stormwater management controls such that the ET and gamma caps meet their respective performance standards, and maintain the zero stormwater discharge status of the FMC plant site. Site-wide stormwater runoff controls will be evaluated with the following metrics (see Table 4):

1. Routine semi-annual inspection of stormwater runoff management infrastructure including diversion controls and detention ponds.

2. Contingent monitoring for erosion/damage to stormwater runoff management infrastructure to be implemented within seven days after a 25-year, 24-hour storm or a seismic event.

The unacceptable condition (action trigger) for each of these monitoring metrics is verified damage as identified by the visual inspections. The associated response action for identified damage is to repair the damage within 7 days as conditions permit (see Table 4). These metrics are discussed in more detail below.

3.3.1.1 *Performance Metrics for Routine Site-Wide Stormwater Runoff Management Inspections*

The following routine site-wide stormwater runoff management inspections and associated performance metrics are listed below. This monitoring is based upon observation of stormwater runoff management system conditions rather than measurements.

- Semi-annually inspect the stormwater runoff management systems, i.e., conveyance ditches, diversion berms, and retention ponds for signs of excessive erosion, deposition of sediments, accumulation of debris, or other indications that the stormwater management system design may be compromised. This will be performed after the spring snowmelt (in April or May) and in the fall (September or October). This inspection will involve examining stormwater conveyances/diversions to determine if the stormwater management design is functioning as planned. Any significant erosion will be repaired (filled in with topsoil) and/or accumulated sediment/debris will be removed as soon as practicable (i.e., repairs will be commenced within 7 days, except if frozen soil/snow cover/muddy conditions exist such that the cap surface could be damaged during implementation or repairs are not feasible due to ground conditions). All required repairs will be summarized and reported annually.

3.3.1.2 *Storm Event Stormwater Runoff Management System Inspections*

The following stormwater runoff management system inspections will be performed after a 25-year, 24-hour storm event. This monitoring is based upon observation of stormwater runoff management systems conditions rather than measurements.

- Within seven (7) days of a 25-year, 24-hour storm event, inspect all of the site-wide stormwater runoff management systems for stormwater runon/runoff damage. This monitoring will involve visually inspecting stormwater conveyances, diversion berms, and retention ponds to determine if there is evidence of excessive erosion from runoff or significant deposition of sediment (runon) or other indications that the stormwater management system design may be compromised. Any significant erosion will be repaired (filled in with topsoil) and/or accumulated sediment will be removed as soon as practicable (i.e., repairs will be commenced within 7 days, except if frozen soil/snow cover/muddy conditions exist such that the cap surface could be damaged during

implementation or repairs are not feasible due to ground conditions). All required repairs will be summarized and reported annually.

3.4 SITE SECURITY SYSTEMS

The objective of the site security system monitoring is to ensure that site security systems are in place, functional, and properly maintained. Site security systems for the FMC Plant Site include fencing, secured gates, and warning signs. Warning signs will be posted on each vehicle gate and man gate located along the FMC Plant Site property boundary.

3.4.1 Performance Standards for Site Security Systems

The PSVP for site security systems is summarized in Table 5. The post-remedial monitoring and maintenance elements shown in Table 5 apply to the site-wide infrastructure consisting of fencing, gates, and signage.

The stated performance standard for site-wide security is that the site security systems will be installed and maintained to minimize unauthorized entry onto the FMC plant site. Site-wide security systems will be evaluated with the following metrics (see Table 5):

1. Routine semi-annual inspection of site-wide security infrastructure including fences, gates, and signage.

2. Review of security breaches to evaluate the need for security system improvements.

The unacceptable conditions (action triggers) for each of these monitoring metrics are summarized in Table 5 along with the associated response action. These metrics are discussed in more detail below.

3.4.1.1 *Performance Metrics for Site Security Systems*

The site security system inspections and associated performance metrics are listed below. This monitoring is based upon observation of security system conditions rather than measurements.

- Semi-annually inspect the site security systems, i.e., fences, gates, and signage to: 1) verify that the perimeter fencing around the FMC Plant Site is in place and in good repair, 2) verify that the gates are closed and locked, except when workers are present within the fenced area, 3) verify that signage is in place and legible, and 4) determine whether there is any evidence of unauthorized entry or attempted entry into the fenced FMC Plant Site. Any issues requiring attention or maintenance on the security systems are to be noted on inspection forms. All required repairs will be summarized and reported annually.

TABLE 1
PERFORMANCE STANDARDS VERIFICATION PLAN SUMMARY
FOR EVAPOTRANSPIRATIVE CAPS (Non-P4 RAs)
FMC Corporation - Pocatello, Idaho

Post-Remedial Monitoring Element[1]	Measurement/Inspection	Activity Frequency	Action Trigger/Unacceptable Condition	Response Action
Routine Inspections	Topsoil Depth Indicators	Annually[2]	Visually apparent damage to, or obscured topsoil depth indicators.	Maintenance action as soon as practicable[3].
	Signs of Stormwater Erosion/Damage	Semiannually	Signs of excessive run-on/runoff cap erosion or other damage, or sediment buildup.	Maintenance action as soon as practicable[3].
	Stormwater Diversion Controls	Semiannually	Damage to or buildup within diversion control infrastructure.	Maintenance action as soon as practicable[3].
	Rodent/Insect Damage	Semiannually	Excessive rodent or insect activity causing damage to the cap.	Repair damage as soon as practicable[3].
25-Year, 24-Hour Storm, Seismic Event Inspections	Signs of Stormwater Erosion/Damage	Within 7 Days[4]	Signs of excessive run-on/run-off cap erosion or other damage, or sediment buildup.	Maintenance action as soon as practicable[3].
	Stormwater Diversion Controls	Within 7 Days[4]	Damage to or buildup within diversion control infrastructure.	Maintenance action as soon as practicable[3].
Routine Measurements	Vegetation Survey	Annually[2]	33% or more of transect plots less than 0.5 plant per square foot.	Areas of non-compliance are reseeded in the fall.
	Topsoil Depth	Annually[2]	>2 inches below installed thickness at 50% of indicators.	Evaluate topsoil on cap. If warranted, add topsoil[4] and reseed in the fall.

Notes:

[1] This list of post-remedial monitoring and maintenance elements apply to evapotranspiritive caps over areas RA-E, RA-F2, RA-H that do not contain elemental phosphorous.

[2] Cap surface vegetation and topsoil depth monitoring will be performed annually until 5 consecutive years meet the acceptable vegetation density / topsoil depth (i.e., do not exceed triggers for maintenance) after which this monitoring will be discontinued.

[3] Repairs / maintenance will commence within 7 days except if frozen soil / snow cover / muddy conditions exist such that cap surface could be damaged in order to implement the repair/maintenance activity or are not feasible due to snow cover / frozen soil conditions (possible between November through May). If maintenance / repairs are delayed by surface conditions any repairs or maintenance will commence within 7 days of the presence of acceptable cap surface conditions. In the event maintenance or repairs must be delayed beyond commencement within 7 days for cause(s) other than frozen soil / snow cover / muddy conditions,FMC will notify EPA within 48 hours of the observation of a condition for which the maintenance/repair will be delayed.

[4] The monitoring will be performed within 7 days of the triggering storm or seismic event except if not feasible due to inaccessibility to the site or snow cover(possible between November through May). If the monitoring is delayed, the monitoring will be performed within 7 days of the ability to access the site.

TABLE 2
PERFORMANCE STANDARDS VERIFICATION PLAN SUMMARY
FOR EVAPOTRANSPIRATIVE CAPS (RAs with P4)
FMC Corporation - Pocatello, Idaho

Post-Remedial Monitoring Element[1]	Measurement/Inspection	Activity Frequency	Action Trigger/Unacceptable Condition	Response Action
Routine Inspections	Topsoil Depth Indicators	Annually[2]	Visually apparent damage to, or obscured topsoil depth indicators.	Maintenance action as soon as practicable[4].
	Settlement Monument (Re-established for Slag Pit Sump)	Annually[3]	Visually apparent damage to, or obscured settlement monument.	Maintenance action as soon as practicable[4].
	Signs of Stormwater Erosion/Damage	Semiannually	Signs of excessive run-on/runoff cap erosion or other damage, or sediment buildup.	Maintenance action as soon as practicable[4].
	Stormwater Diversion Controls	Semiannually	Damage to or buildup within diversion control infrastructure.	Maintenance action as soon as practicable[4].
	Rodent/Insect Damage	Semiannually	Excessive rodent or insect activity causing damage to the cap.	Maintenance action as soon as practicable[4].
25-Year, 24-Hour Storm Event Inspections	Signs of Stormwater Erosion	Within 7 Days[5]	Signs of excessive run-on/run-off cap erosion or other damage, or sediment buildup.	Maintenance action as soon as practicable[4].
	Stormwater Diversion Controls	Within 7 Days[5]	Damage to or buildup within diversion control infrastructure.	Maintenance action as soon as practicable[4].
Seismic Event	Settlement Survey for Slag Pit Sump	Within 7 Days[5]	Exceeds acceptable settlement rate.	Engineering evaluation and repair of impacted cap areas.
Routine Measurements	Phosphine Gas Survey[6]	Annually for 5 Years	Soil gas measurement ≥ 0.05 ppm PH3 will trigger monitoring above ET cap surface. Any measurement above the ET cap surface ≥ 1.0 ppm PH3 will trigger fenceline monitoring.	Initiate confirmation soil gas sampling and above-cap monitoring (i.e., surface scan, ambient air, and low-lying area monitoring). If confirmed surface scan, ambient air, or low-lying area monitoring ≥ 0.05 ppm PH3, FMC will propose an enhanced PH3 monitoring program for that area. Any measurement above the ET cap surface ≥ 1.0 ppm PH3 will trigger fenceline monitoring.
	Contingent Soil Chemistry Monitoring for soil pH and soil density[7]	Annually for 5 Years	Soil chemistry monitoring for a given area will only be triggered if confirmed soil gas measurement ≥ 0.05 ppm PH3. Soil pH action trigger will be if top 12 inches of soil pH is outside the range of 5 to 9. If so, soil density action trigger will be if top 24 inches of soil has soil density outside the range of 80% of maximum dry density to 90% of maximum dry density.	Enhanced soil chemistry/properties evaluation will be proposed for a given area if soil pH and/or soil density measurements fall outside the specified trigger ranges.
	Vegetation Survey	Annually[2]	33% or more of transect plots less than 0.5 plant per square foot.	Areas of non-compliance are reseeded in the fall.
	Topsoil Depth Measurements	Annually[2]	>2 inches below installed thickness at 50% of indicators.	Evaluate topsoil on cap. If warranted, add topsoil[5] and reseed in the fall.
	Settlement Survey for Slag Pit Sump	Annually[4]	Exceeds acceptable settlement rate.	Engineering evaluation and repair of impacted cap areas.

Notes:

[1] This list of post-remedial monitoring and maintenance elements apply to evapotranspiritive caps over areas RA-B, RA-C, RA-D, RA-K, RA-F1 where elemental phosphorous may exist.

[2] Cap surface vegetation and topsoil depth monitoring will be performed annually until 5 consecutive years meet the acceptable vegetation density / topsoil depth (i.e., do not exceed triggers for maintenance) after which this monitoring will be discontinued.

[3] Settlement monitoring will be performed annually during the post-remedial period until the total cumulative movements for the previous five years are less than 0.03 foot vertically after which settlement monitoring will performed every 5 years.

[4] Repairs / maintenance will commence within 7 days except if frozen soil / snow cover / muddy conditions exist such that cap surface could be damaged in order to implement the repair/maintenance activity or are not feasible due to snow cover / frozen soil conditions (possible from November through May). If maintenance / repairs are delayed by surface conditions any repairs or maintenance will commence within 7 days of the presence of acceptable cap surface conditions. In the event maintenance or repairs must be delayed beyond commencement within 7 days for cause(s) other than frozen soil / snow cover / muddy conditions, FMC will notify EPA within 48 hours of the observation of a condition for which the maintenance/repair will be delayed.

[5] The monitoring will be performed within 7 days of the triggering storm or seismic event except if not feasible due to inaccessibility to the site or snow cover (possible from November through May). If the monitoring is delayed, the monitoring will be performed within 7 days of the ability to access 1) the site (erosion monitoring) and 2) the settlement monument and depth indicators.

[b]Phosphine gas monitoring will be performed direct soil gas sampling within the capillary break layer of the ET Cap.

[7]Soil chemistry monitoring will be a contingent action and will only be perfromed if PH3 is detected at or above 0.05 ppm PH3 in the confirmed soil gas monitoring.

TABLE 3

PERFORMANCE STANDARD VERIFICATION PLAN SUMMARY
FOR GAMMA CAPS
FMC Corporation - Pocatello, Idaho

Post-Remedial Monitoring Element[1]	Measurement/Inspection	Activity Frequency	Action Trigger/Unacceptable Condition	Response Action
Routine Inspections	Signs of Stormwater Erosion/Damage	Semiannually	Signs of excessive run-on/runoff cap erosion or other damage, or sediment buildup.	Maintenance action as soon as practicable[3].
	Stormwater Diversion Controls	Semiannually	Damage to or buildup within diversion control infrastructure.	Maintenance action as soon as practicable[3].
	Rodent/Insect Damage	Semiannually	Excessive rodent or insect activity causing damage to the cap.	Maintenance action as soon as practicable[3].
25-Year, 24-Hour Storm, Seismic Event Inspections	Signs of Stormwater Erosion/Damage	Within 7 Days[4]	Signs of excessive run-on/run-off cap erosion or other damage, or sediment buildup.	Maintenance action as soon as practicable[3].
	Stormwater Diversion Controls	Within 7 Days[4]	Damage to or buildup within diversion control infrastructure.	Maintenance action as soon as practicable[3].
Routine Measurements	Cap Surface Gamma Radiation	Every 5 Years	TBD[5]	TBD[5]

Notes:

[1] This list of post-remedial monitoring and maintenance elements apply to Gamma caps over areas RA-A, RA-A1, RA-F, RA-G that do not contain elemental phosphorous.

[2] Cap surface vegetation and topsoil depth monitoring will be performed annually until 5 consecutive years meet the acceptable vegetation density / topsoil depth (i.e., do not exceed triggers for maintenance) after which this monitoring will be discontinued.

[3] Repairs / maintenance will commence within 7 days except if frozen soil / snow cover / muddy conditions exist such that cap surface could be damaged in order to implement the repair/maintenance activity or are not feasible due to snow cover / frozen soil conditions (possible between November through May). If maintenance / repairs are delayed by surface conditions any repairs or maintenance will commence within 7 days of the presence of acceptable cap surface conditions. In the event maintenance or repairs must be delayed beyond commencement within 7 days for cause(s) other than frozen soil / snow cover / muddy conditions,FMC will notify EPA within 48 hours of the observation of a condition for which the maintenance/repair will be delayed.

[4] The monitoring will be performed within 7 days of the triggering storm or seismic event except if not feasible due to inaccessibility to the site or snow cover(possible between November through May). If the monitoring is delayed, the monitoring will be performed within 7 days of the ability to access the site.

[5] This monitoring, frequency, and response actions will be developed after completion of the test gamma cap investigation to be completed in Spring 2015.

TABLE 4

PERFORMANCE STANDARDS VERIFICATION PLAN SUMMARY
FOR SITE-WIDE STORMWATER RUNOFF MANAGEMENT
FMC Corporation - Pocatello, Idaho

Objective: The objectives of the site-wide stormwater management and grading plans are to 1) establish the elevation contours for the subgrade to receive the ET and gamma caps, 2) design a site-wide stormwater capture, conveyance and detention system that minimizes erosion and diverts water from the planned ET and gamma covers and existing capped areas, and 3) integrate the stormwater management system and grading plans with the existing and planned caps, access roads, infrastructure and monitoring systems.

Post-Remedial Monitoring Element[1]	Measurement/Inspection	Activity Frequency	Action Trigger/Unacceptable Condition	Response Action
Routine Inspections	Signs of Stormwater Erosion	Semiannually	Signs of excessive run-on/runoff or other damage, or sediment buildup.	Maintenance action as soon as practicable[2].
	Stormwater Diversion Controls	Semiannually	Damage to or buildup within diversion control infrastructure.	Maintenance action as soon as practicable[2].
	Stormwater Detention Ponds	Semiannually	Visual identification of areas of ponding or potential surface water impoundment.	Maintenance action as soon as practicable[2].
25-Year, 24-Hour Storm Event Inspections	Signs of Stormwater Erosion	Within 7 Days[3]	Signs of excessive run-on/runoff or other damage, or sediment buildup.	Maintenance action as soon as practicable[2].
	Stormwater Diversion Controls	Within 7 Days[3]	Damage to or buildup within diversion control infrastructure.	Maintenance action as soon as practicable[2].
	Stormwater Detention Ponds	Within 7 Days[3]	Visual identification of areas of ponding or potential surface water impoundment.	Maintenance action as soon as practicable[2].

Notes:

[1] This list of post-remedial monitoring and maintenance elements apply to site-wide stormwater runoff management infrastructure

[2] Repairs / maintenance will commence within 7 days except if frozen soil / snow cover / muddy conditions exist such that cap surface could be damaged in order to implement the repair/maintenance activity or are not feasible due to snow cover / frozen soil conditions (possible from November through May). If maintenance / repairs are delayed by surface conditions any repairs or maintenance will commence within 7 days of the presence of acceptable cap surface conditions. In the event maintenance or repairs must be delayed beyond commencement within 7 days for cause(s) other than frozen soil / snow cover / muddy conditions, FMC will notify EPA within 48 hours of the observation of a condition for which the maintenance/repair will be delayed.

[3] The monitoring will be performed within 7 days of the triggering storm or seismic event except if not feasible due to inaccessibility to the site or snow cover(possible from November through May). If the monitoring is delayed, the monitoring will be performed within 7 days of the ability to access 1) the site (erosion monitoring) and 2) the monuments / indicators (settlement and soil creep monitoring).

TABLE 5

PERFORMANCE STANDARDS VERIFICATION PLAN SUMMARY
FOR SITE SECURITY SYSTEMS
FMC Corporation - Pocatello, Idaho

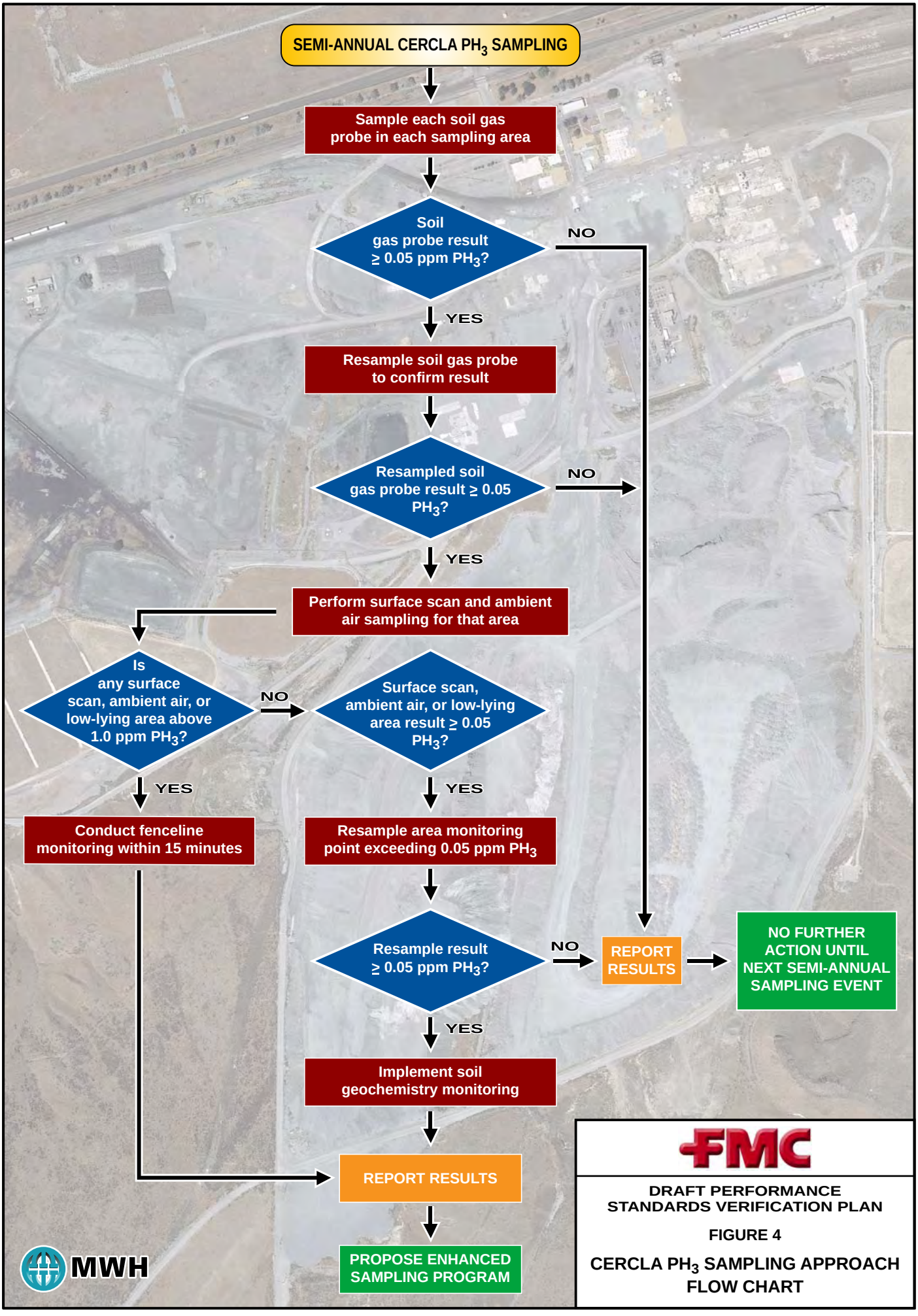
Objective: The objective of the site security system monitoring is to ensure that site security systems are in place, functional, and maintained. Site security systems for the FMC Plant Site include fencing, secured gates, and warning signs. .

Post-Remedial Monitoring Element[1]	Measurement/Inspection	Activity Frequency	Action Trigger/Unacceptable Condition	Response Action
Routine Inspections	Site-wide fences	Semiannually	Fence damage, conditions which allow for unauthorized entry, and/or evidence of tampering.	Maintenance action as soon as practicable[2].
	Site-wide gates	Semiannually	Gate opened, unlocked, damaged, conditions which allow for unauthorized entry, and/or evidence of tampering.	Maintenance action as soon as practicable[2].
	Site-wide signage	Semiannually	Signs missing, damaged, or un-readable.	Maintenance action as soon as practicable[2].

Notes:

[1] This list of post-remedial monitoring and maintenance elements apply to site security systems and infrastructure

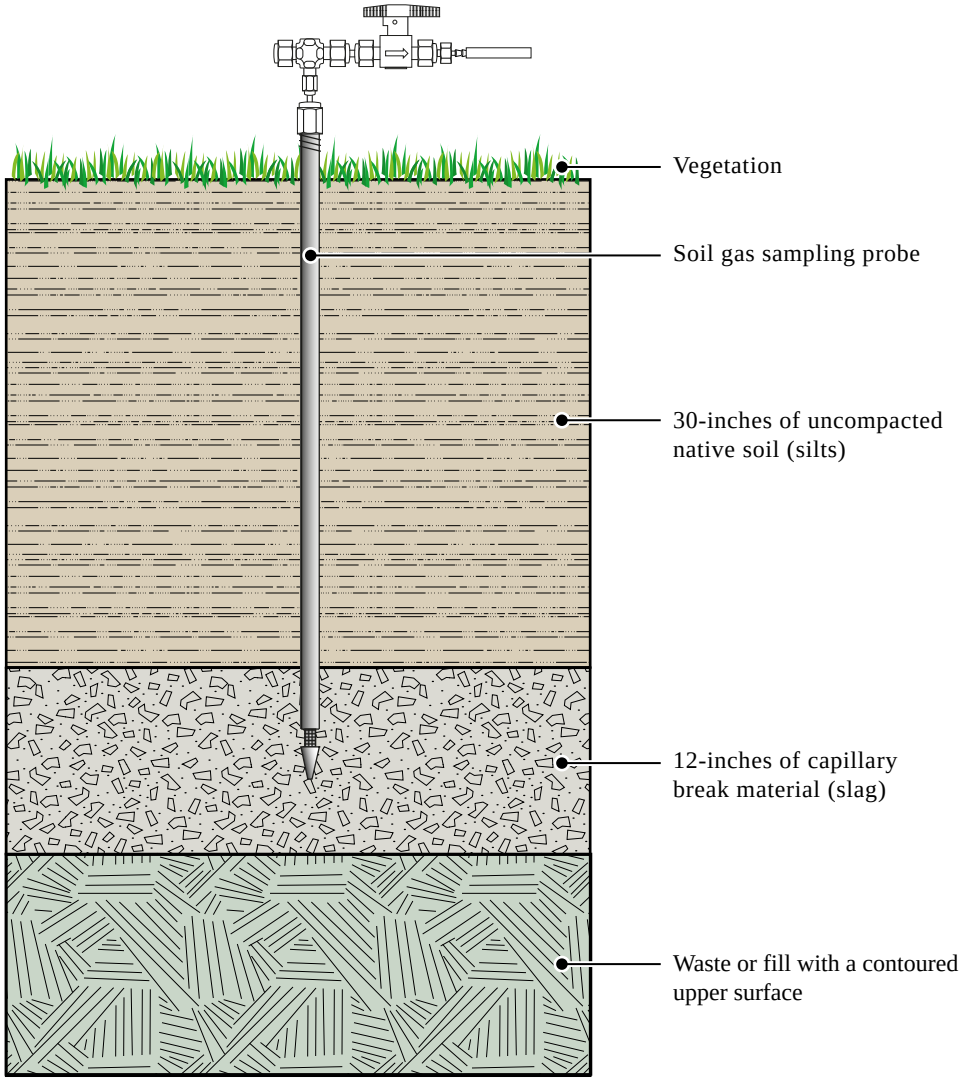
[2] Repairs / maintenance will commence within 7 days except if weather conditions exist which prevent access to the area needing repairs. If maintenance / repairs are delayed by weather conditions, repairs or maintenance will commence within 7 days of acceptable conditions. In the event maintenance or repairs must be delayed beyond commencement within 7 days other than weather conditions, FMC will notify EPA within 48 hours of the observation of a condition for which the maintenance/repair will be delayed (e.g., waiting for replacement parts or service).


SEMI-ANNUAL CERCLA PH_3 SAMPLING
Sample each soil gas probe in each sampling area
Soil gas probe result ≥ 0.05 ppm PH_3?
NO
YES
Resample soil gas probe to confirm result
Resampled soil gas probe result ≥ 0.05 PH_3?
NO
YES
Perform surface scan and ambient air sampling for that area
Is any surface scan, ambient air, or low-lying area above 1.0 ppm PH_3?
NO
Surface scan, ambient air, or low-lying area result ≥ 0.05 PH_3?
YES
YES
Conduct fenceline monitoring within 15 minutes
Resample area monitoring point exceeding 0.05 ppm PH_3
Resample result ≥ 0.05 ppm PH_3?
NO
REPORT RESULTS
NO FURTHER ACTION UNTIL NEXT SEMI-ANNUAL SAMPLING EVENT
YES
Implement soil geochemistry monitoring
REPORT RESULTS
PROPOSE ENHANCED SAMPLING PROGRAM
MWH
FMC
DRAFT PERFORMANCE STANDARDS VERIFICATION PLAN
FIGURE 4
CERCLA PH_3 SAMPLING APPROACH FLOW CHART
DRAWN BY D. Severson
6 Jan 2015
I:\projects\FMCidaho\FMC_DRAFTFINAL_Perf Stand Verif Plan\FIGURES\Fig 4_FMC_CERCLA PH3 Sampling Approach Flow Chart_Jan2015.ai

DRAWN BY D. Severson

6 Jan 2015

I:\projects\FMCidaho\FMC_DRAFTFINAL_Perf Stand Verif Plan\FIGURES\Fig 5_ FMC_Anticipated ET Cap Soil Gas Probe Design_Jan2015.ai



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FMC

DRAFT PERFORMANCE STANDARDS VERICIFICATION PLAN

FIGURE 5

ANTICIPATED ET CAP SOIL GAS PROBE DESIGN

4.0 MONITORING RESULTS REPORTING PLAN

The intent of this PSVP is to establish appropriate procedures for evaluating the success of the remedial action and ongoing operation and maintenance actions, and enable long-term optimization of the program by identifying when specific standards have been met and monitoring can be reduced or stopped. To accomplish these goals, the monitoring protocols presented in this PSVP will be evaluated at the frequencies described in Tables 1 through 5, and as further described in the OM&M Plan.

In certain cases, as identified in the OM&M Plan, the response action is required as soon as practicable. In the case of measured values, e.g., soil depth measurements, the performance monitoring activity results in data that require evaluation. The final OM&M Plan will include an annual summary report of the monitoring and maintenance activities performed pursuant to that Plan and will be transmitted to the EPA by April 15th annually, summarizing the prior year's activities. It is furthermore expected that these annual reports will also be used during preparation of the project Five-Year Review documents.

5.0 REFERENCES

EPA 2012. Interim Amendment to the Record of Decision for the EMF Superfund Site - FMC Operable Unit - Pocatello, Idaho, September 27, 2012.

EPA, 2013. Unilateral Administrative Order for Remedial Design and Remedial Action, EPA Docket No. CERCLA-10-2013-0116, June 10, 2013.

MWH, 2013. Remedial Design Work Plan for the FMC OU. December, 2013.

National Oceanic and Atmospheric Administration (NOAA), 1973. NOAA Atlas 2 Precipitation-Frequency Atlas of the Western United States, Volume V – Idaho.

FMC Idaho LLC, Pocatello, Idaho

FMC OU REMEDIAL DESIGN

DRAFT OPERATION, MONITORING AND MAINTENANCE PLAN

March 2014
Revised January 2015

MWH

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APPENDICES

FIGURES

(Figures follow text)

TABLES

(Tables follow figures)

ACRONYMS/ABBREVIATIONS

ARARs	Applicable or Relevant and Appropriate Requirements
Bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COCs	contaminants of concern
CQAP	Construction Quality Assurance Plan
EPA	U.S. Environmental Protection Agency
ET	evapotranspirative
FeP	ferrophos
ft	feet
GWCCR	Groundwater Current Conditions Report
ICIAP	Institutional Controls Implementation and Assurance Plan
IRODA	Interim Record of Decision Amendment
MCLs	Maximum Contaminant Concentrations
OM&M	operation, monitoring and maintenance
OU	operable unit
PCDA	Power County Development Authority
P4	elemental phosphorus
PH3	phosphine gas
RA	remediation area
RAO	remedial action objective
RBCs	risk-based concentrations
RD	remedial design
SFS	Supplemental Feasibility Study
SRI	Supplemental Remedial Investigation
UAO	Unilateral Administrative Order
WUA	Western Undeveloped Area

1.0 INTRODUCTION

The *Draft Operation, Monitoring and Maintenance Plan* – Soil Remedy (OM&M Plan) has been developed for the FMC OU Site to address the long-term OM&M requirements associated with the remedial elements of the soil remedial action. This document has been prepared in accordance with Section I.X.30.c.7.ee. of the Unilateral Administrative Order (UAO, EPA, 2013).

This draft OM&M Plan presents a framework and proposed elements of the program to be implemented to ensure that the remedial elements of the soil remedy continue to perform as designed and achieve their performance objectives. This draft final OM&M Plan contains:

- Description of and schedule for each inspection, monitoring and maintenance activity;
- Inspection, monitoring and maintenance procedures;
- Description of inspection and monitoring results that may trigger maintenance, and a schedule for implementing maintenance;
- Description of monitoring equipment
- Description of records and reports that will be generated during OM&M and provisions for submission of annual OM&M summary reports to EPA.

1.1 PURPOSE AND SCOPE

The purpose of this OM&M Plan is to describe the program of inspection, monitoring and maintenance activities and frequencies for the FMC OU soil remedy. The objectives of the OM&M Plan are the following:

- Provide general information relative to the FMC OU and pertinent references to other documents related to the remedial design/remedial action for the FMC OU;
- Identify those aspects of the FMC OU soil remedy requiring inspection, monitoring, and potential maintenance;
- Provide procedures for inspection, monitoring, and maintenance of the soil remedy; and
- Specify reporting requirements.

1.2 ORGANIZATION OF THE OM&M PLAN

The remainder of this Plan consists of the following sections:

- Section 2.0 contains general information relative to the FMC OU.
- Section 3.0 presents the OM&M requirements.

- Section 4.0 identifies the recordkeeping requirements.
- Section 5.0 contains references.
- Appendix A contains the *Quality Assurance Project Plan* (QAPP)
- Appendix B contains the *Field Sampling Plan* (FSP)

2.0 PROJECT BACKGROUND

2.1 LOCATION

The FMC OU, which includes the former plant process areas, other areas related to the plant operation, and adjacent FMC-owned areas, occupies approximately 1,450 acres in Power County, Idaho on privately-owned fee land, most of which is located within the exterior boundaries of the Fort Hall Indian Reservation (see Figure 2-1).

2.2 SITE HISTORY

The FMC elemental phosphorus facility, occupying most of the property that FMC owns south of Highway 30 near Pocatello and referred to as the "FMC Plant Site," ceased production in December 2001. From 2002 through 2006, the facility was decommissioned and its infrastructure was demolished to ground level. The FMC facility operated essentially continuously from 1949 (prior to that time the site was primarily in agricultural use) through 2001.

The FMC facility produced elemental phosphorus from phosphate-bearing shale ore mined regionally. The shale, combined with coke and silica, was fed into four electric arc furnaces located in the furnace building (within remedial area [RA]-B). The furnace reaction primarily yielded gaseous elemental phosphorus (P4), CO gas, slag, and ferrophos (FeP). The P4 gas was subsequently condensed to a liquid state and stored in sumps and tanks prior to shipment off-site as product. P4 will burn upon contact with air. Therefore, to prevent oxidation, the condensed P4 product was kept covered with water from the time it was produced through loading and transport off-site.

The FMC OU is part of the Eastern Michaud Flats (EMF) Superfund site.

2.3 NATURE AND EXTENT OF SOIL CONTAMINATION

The EMF Site has been the subject of many environmental investigations. Most notable are the RI and SRI, as summarized in the *EMF RI Report (BEI, 1996), SRI Report (MWH, 2009a), SRI Addendum Report* (MWH, 2009b) and *Groundwater Current Conditions Report* (GWCCR, MWH, 2009c). These reports provide detailed information on the results of the investigations conducted at the FMC OU.

Primary release mechanisms of contaminants into the surrounding environment at the FMC OU include erosion and storm water runoff, extensive use of hazardous wastes as fill, disposal of elemental phosphorus-contaminated wastes in CERCLA ponds, and potential migration of soil COCs to groundwater from infiltration of precipitation.

Phosphine gas (PH3) may be generated in fill within RAs that contain P4 because of the reaction of P4 with water that may be present in fill. PH_3 has not been detected in ambient air at levels that would present a risk to human health in the FMC OU (MWH, 2010a). Radium-226 in

surface soil has been determined to be a primary COC in surface soil because of risks associated with gamma exposure. P4 and other contaminants of concern (COCs) exist at depths down to approximately 90 feet below ground surface (bgs).

2.4 INTERIM RECORD OF DECISION AMENDMENT

The Interim Record of Decision Amendment (IRODA, EPA, 2012) presents the selected remedy for the FMC OU. With respects to contaminated soils at the FMC OU, the selected interim remedy will protect human health and the environment by eliminating, reducing, or controlling risks by containing contaminated soils with engineering controls and institutional controls. This OM&M Plan ensures that the soil remedial actions continue to perform as designed. A separate *Groundwater Operation, Monitoring and Maintenance Plan* will be developed for the groundwater elements of the remedy defined in the IRODA. Additionally, land use restrictions will limit activities at the FMC OU to commercial/industrial uses, prohibit activities that may disturb the implemented remedial actions, and restrict human consumption of contaminated groundwater. Land use restrictions will also reference an Excavation and Fill Management Plan.

2.4.1 Remedial Action Objectives for Site Soils

The RAOs for contaminated soils at the FMC OU include the following elements:

- Prevent human exposure via all potential pathways (external gamma radiation exposure, inhalation of radon in potential future buildings, incidental soil ingestion, dermal absorption, and fugitive dust inhalation) to soils and solids contaminated with COCs thereby resulting in an unacceptable risk to human health assuming current or reasonably anticipated future land use.

- Minimize generation of and prevent exposure to PH3 and other gases that represent an unacceptable risk to human health and the environment.

- Prevent direct exposure to P4 under conditions that may cause it to spontaneously combust, posing a fire hazard as well as resultant air emissions that represent a significant threat to human health or the environment, and prevent such conditions.

- Prevent potential ingestion of groundwater containing COCs in concentrations exceeding risk-based concentrations (RBC) or applicable or relevant and appropriate requirements (ARARs), or site-specific background concentrations if RBCs or ARARs are more stringent than background.

- Reduce the release and migration of COCs to the groundwater from FMC OU sources resulting in concentrations in groundwater exceeding RBCs or ARARs, or site-specific background if RBCs or ARARs are more stringent than background.

- Reduce the release and migration of COCs to surface water from FMC OU sources at concentrations exceeding RBCs or ARARs, including water quality criteria pursuant to Sections 303 and 304 of the Clean Water Act.

2.4.2 Selected Remedy Summary for Site Soils

The remedy for FMC OU soils selected in the 2012 IRODA replaces the remedy for these soils that was selected in the 1998 ROD. The IRODA soil remedy addresses metals, radionuclides, and other COCs identified in soils and fill at the FMC OU. The locations of the various RAs are shown in Figure 2-2. The IRODA selected remedy for the FMC OU soils includes the following components:

- Place evapotranspiration (ET) caps over areas that contain non-slag fill (such as P4, phossy solids, precipitator solids, kiln scrubber solids, industrial waste water sediments, calciner pond solids, calcined ore, and plant/construction landfill debris) to (1) prevent migration of contaminants to groundwater, preventing the infiltration of rainwater, and (2) prevent direct contact with contaminants by current and or future workers. ET caps will be placed over the following RAs: RA-B, RA-C, RA-D, RA-E, RA-F1, RA-F2, RA-H, and RA-K as shown on Figure 2-2;

- Place approximately 12 inches of soil cover over (1) areas containing slag fill, (2) ore stockpiles, and (3) the former Bannock Paving areas to prevent gamma radiation and fugitive dust exposure to potential future workers. Gamma radiation-protective soil covers will be placed over RA-A, RA-F, and RA-G, as shown on Figure 2-2;

- Excavate contaminated soil from Parcel 3 of FMC's Northern Properties, also known as RA-J, and consolidate that soil onto the Former Operations Area to prevent exposure of residents and future workers to elevated levels of radionuclides in surface soil;

- Clean underground reinforced concrete pipes within RA-A that may contain P4 and radionuclides to prevent exposure to potential future workers;

- Implement a long-term groundwater monitoring program to evaluate the performance of the soil and groundwater remedial actions to determine their effectiveness in reaching the cleanup levels, and provide information needed for developing a final groundwater remedy protective of human health and the environment if the current interim remedy cannot meet cleanup requirements within an acceptable timeframe. The long-term groundwater monitoring program will be based on the current groundwater monitoring program, which may be refined during the Remedial Design/Remedial Action phase;

- Implement a gas monitoring program at the FMC OU capped ponds (also referred to as "CERCLA ponds" to distinguish them from the "RCRA-regulated" ponds) and

subsurface areas where P4 is present to identify potential PH3 and other potential gas generation at concentrations that could pose a risk to human health;

- Implement and maintain institutional controls that include environmental land use easements prohibiting activities that may disturb implemented remedies (such as digging in capped areas) and restrict the use of contaminated groundwater;
- Install engineering controls or barriers, such as additional fencing to further limit site access;
- Implement a remedy management system to integrate the existing RCRA Pond caps with the development of new caps, access roads, groundwater extraction system, and utility lines;
- Implement an FMC OU-wide storm water runoff management plan to minimize cap erosion and the infiltration of contaminants of concern to groundwater, including FMC OU-wide grading and the collection of storm water in retention basins; and,
- Conduct operations and maintenance of implemented remedial actions.

Other actions, including post-closure activities at the RCRA-regulated units, have been and continue to be performed at the FMC Facility. These actions are not part of the FMC OU because they are conducted under RCRA requirements for closed hazardous waste management units. The post-closure work performed at these units remains regulated under RCRA.

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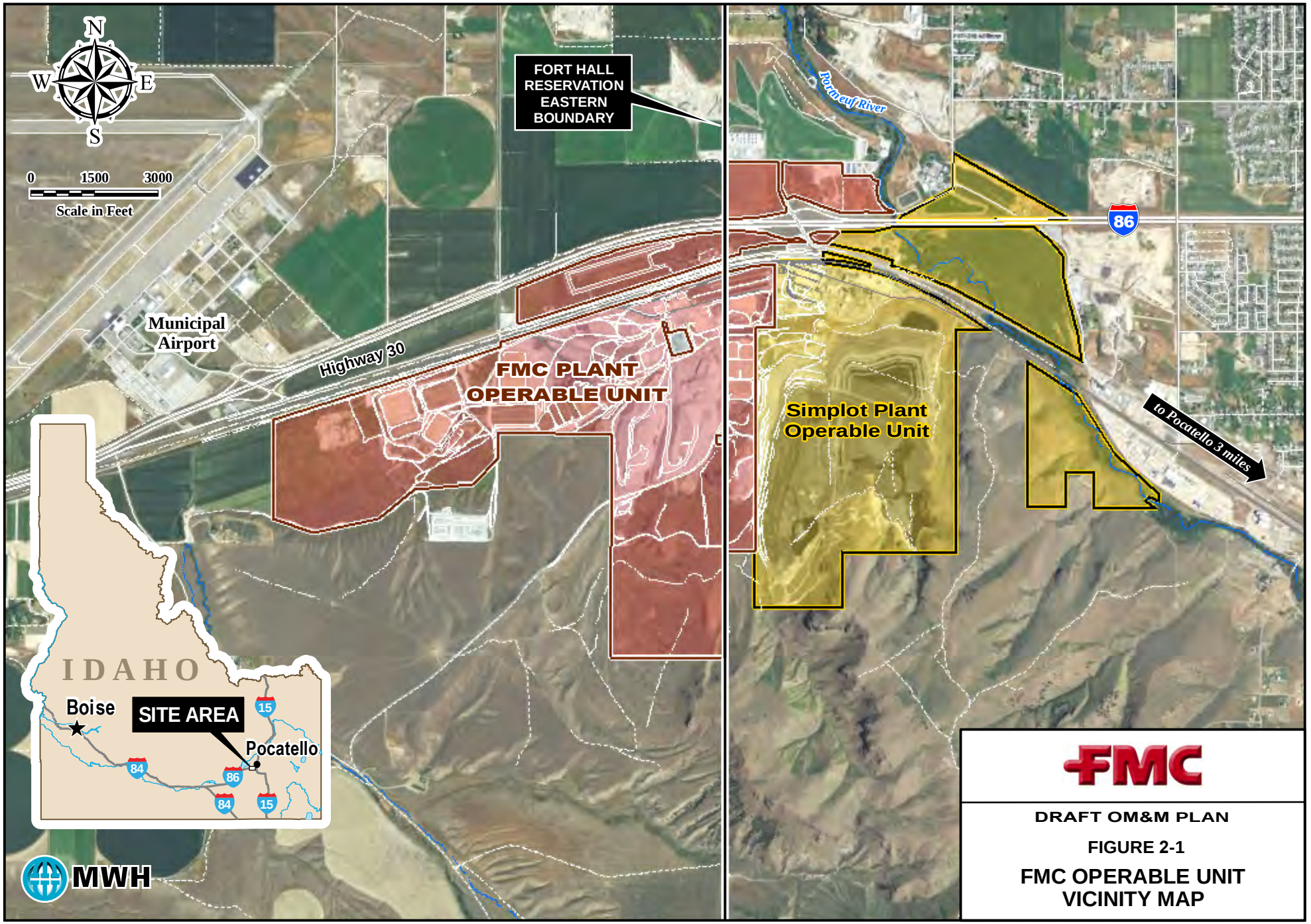

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22 Dec 2014

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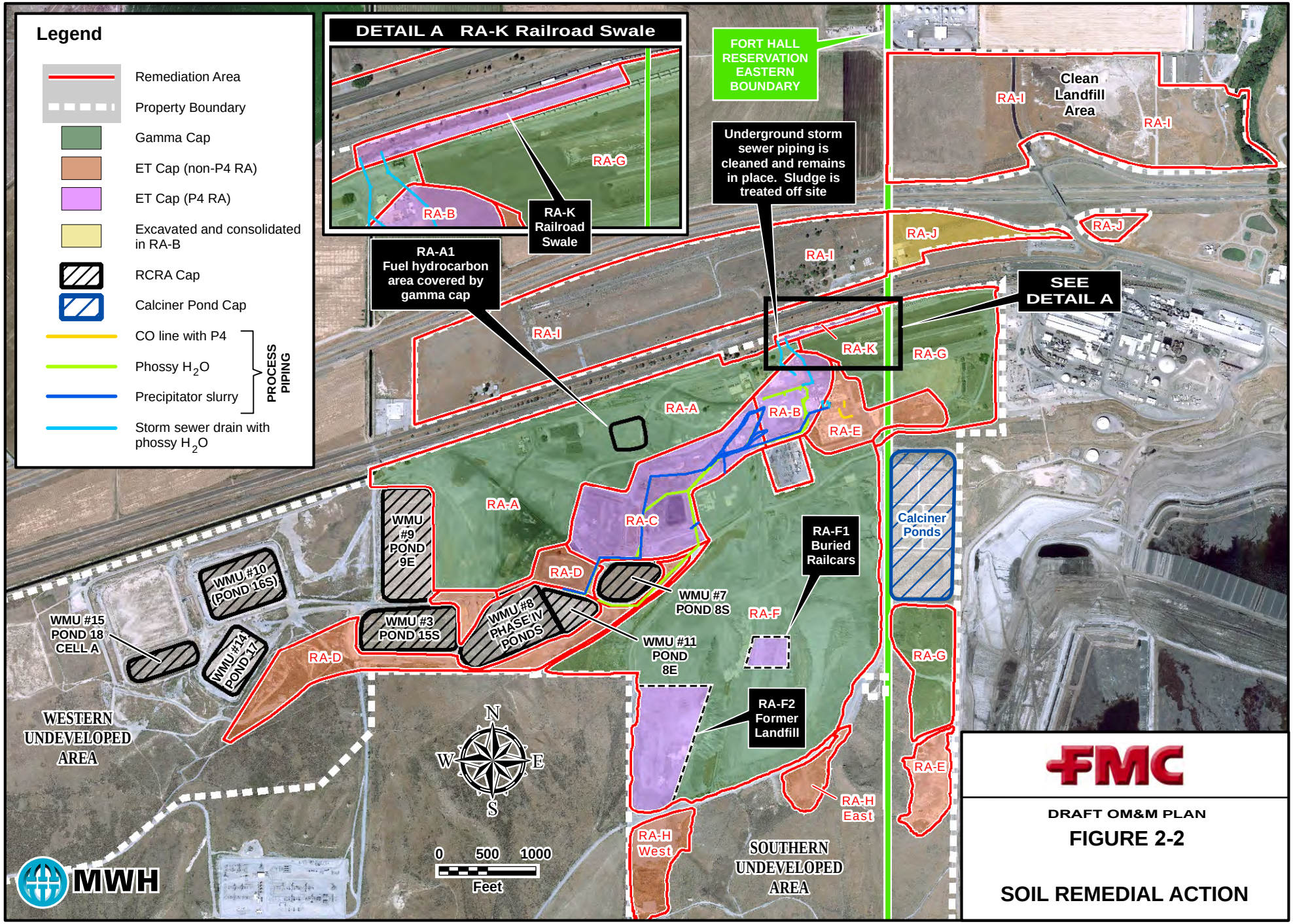


3.0 OPERATION, MONITORING AND MAINTENANCE

Following demonstration that the soil remedy has achieved the specified Remedial Action Objectives pursuant to the *Performance Standard Verification Plan* (PSVP), the activities described in this OM&M Plan will be performed. The monitoring will include both visual inspection and surveying of the soil covers, the stormwater runoff management system, and engineering controls to ensure that their integrity is maintained. The monitoring plan, including the individual monitoring tasks, schedule, monitoring criteria, and maintenance as required, is discussed below.

3.1 EVAPOTRANSPIRATIVE (ET) CAPS

The objectives of the evapotranspirative (ET) caps are to 1) prevent exposure via all viable pathways (external gamma radiation, incidental soil ingestion, dermal absorption, and fugitive dust inhalation) to soils and solids contaminated with COCs that would result in an unacceptable risk to human health under current or reasonably anticipated future land use; 2) reduce the release and migration of COCs to the groundwater from facility sources that may result in concentrations in groundwater exceeding RBCs or chemical-specific ARARs, specifically Maximum Contaminant Levels (MCLs), or reduce to site-specific background concentrations if those are higher, and 3) for the RAs with known or suspected P4 in the subsurface, prevent the direct exposure to elemental phosphorus under conditions where such exposed P4 may spontaneously combust, posing a fire hazard or resultant air emissions that represent a significant risk to human health and the environment, and minimize generation and prevent exposure to phosphine and other gases at levels that present a significant risk to human health and the environment. For purposes of ET cap monitoring, the ET cap surfaces will be segregated into discrete surface areas (as shown on Figure 3.1) defined as:

- RA-B;
- RA-C East;
- RA-C West;
- RA-D East;
- RA-D West;
- RA-E North;
- RA-E South;
- RA-F1;
- RA-F2;
- RA-H East;
- RA-H West; and
- RA-K.

3.1.1 Monitoring Requirements for ET Caps In Non-P4 Areas

The monitoring requirements for ET caps in non-P4 areas are summarized in Table 3.1. The post-remedial monitoring and maintenance elements shown in Table 3.1 apply to ET caps over areas RA-D, RA-E, and RA-H that do not contain elemental phosphorous (see Figure 2-2).

Each ET cap will be subject to the following inspections and monitoring requirements

1. Routine inspection:
    a. cap surface vegetation;
    b. topsoil depth indicators;
    c. signs of stormwater erosion/damage;
    d. rodent and/or insect damage, and
    e. stormwater diversion controls.
2. Contingent inspection for signs of stormwater erosion/damage to the cap and stormwater diversion controls (implemented within seven days after a 25-year, 24-hour storm or a seismic event).
3. Routine measurements consisting of annual review of topsoil depth using depth indicators and an annual vegetation survey.

The monitoring schedule and procedures, unacceptable conditions (action triggers) and associated (maintenance) response actions for each of these monitoring components are summarized in Table 3.1 and presented below.

3.1.1.1 Cap Surface Vegetation Monitoring

The objective of the ET cap vegetation monitoring is to inspect the vegetation cover on the cap surface to ensure that significant areas as defined below do not become devoid of vegetation. The DQOs for surface vegetation monitoring are presented in Table 1.1 of the *Quality Assurance Project Plan* (QAPP, included in Appendix A of this Plan). Procedures for the vegetation monitoring field activities are presented in Section 4.3.1 of the *Field Sampling Plan* (FSP, included in Appendix B of this Plan). The ET cap vegetation monitoring results will be summarized in the Annual Report.

Inspections: Each ET cap surface will be visually inspected annually at the end of the growing season (typically in September or October and just prior to re-seeding if needed) to determine if vegetation (plant) density remains adequate, using the methodology described below. Any areas of the pond cap that require attention or re-vegetation will be noted on inspection and

maintenance forms. Inspection records will be maintained in the Operating Record on-site as described in Section 4.0.

Sampling and/or Measurements: The program for inspecting vegetation at the surface of the ET caps is described below. It is based on and consistent with the *Guidelines for Determining Stand Establishment on Pasture, Range and Conservation Seedings* (USDA, January 2008). The program consists of the following procedures:

1. Walk across the ET cap surface from one side to the opposite side and appraise the variability of the vegetation. On the way back, sample representative areas ("plots") of the cap surface using a pace transect. A square frame will be used to count plants within each plot. The frame should be placed so all four sides touch the ground surface (e.g., do not set the plot frame edge directly on top of bunch grass or sage brush).

2. Record the number of three-leaved (or more) plants (e.g., grasses, shrubs) in a 9-square-foot plot (i.e., within a 3-foot square frame placed on the ground); walk an appropriate number of paces such that the ten sampling plots will be uniformly spaced across the transect (e.g., ten paces [about 30 feet] between each plot for a 330 foot transect) and record again; repeat counting plots until 10 stops have been made. Divide the total number of plants counted by 9 to calculate the number of plants per square foot at each plot / sample (i.e., calculate plant density for each individual 9 square foot plot).

3. Complete three transects and 10-stop plots / samples per transect. Transects will be evenly spaced across the ET cap surface (e.g., one across the eastern third, one across the center and one across the western third of the ET cap) but will also be randomly selected for each monitoring event. .

4. When complete, the plant density will have been counted at and calculated for each of the 30 individual plots. If two-thirds (20 of 30) of the plot samples or more from the 30 total samples from the three transects and 10 samples per transect meet or exceed the minimum target density of 0.5 plants per square foot, then maintenance is not required.

Maintenance Activities: If less than two-thirds of the total 30 samples meet or exceed the target density of 0.5 plants per square foot on a given ET cap surface, then the cap vegetation at that ET cap surface will require maintenance. This will involve reseeding the areas of poor coverage based on specific transect / plot locations that were below the target density. The reseeding will use the vegetation seed mix specified in Table 5.3 of the *Remedial Design Report* (MWH, 2014). Reseeding will be performed in the fall (typically in September - October). In areas where reseeding does not result in established vegetation on areas with continued erosion problems, primarily on the steeper external pond cap slopes, erosion mats may be placed to help establish vegetation and minimize erosion.

In the event that the vegetation coverage fails to meet the performance standard (two-thirds of the plot samples [67%] or more from the aggregate three transects and 10 samples per transect [30 total samples] meet or exceed the minimum target density of 0.5 plants per square foot) for

two (2) consecutive years following the first reseeding performed due to a failure to meet the performance standard, FMC will prepare a plan and schedule for an investigation to determine the cause and recommended actions to reestablish a vegetation cover that meets the performance standard for that ET cap surface. The plan and schedule will be submitted to EPA prior to implementation of the investigation. All necessary repairs will be performed by FMC. Documentation of the reseeding activities will be maintained in the Operating Record on-site as described in Section 4.0.

3.1.1.2 Topsoil Depth Monitoring

The objective of the ET cap topsoil depth monitoring program is to determine if wind and/or water erosion has removed or re-distributed topsoil to the extent that the ET cap may not perform as designed. Topsoil depth indicators will typically be placed at areas on the ET cap most susceptible to wind and water erosion, i.e., on the cap crowns, ridges, and side-slopes. Typical density for placement of topsoil depth indicators will be one (1) per three (3) acres. The DQOs for topsoil depth monitoring are presented in Table 1.1 of the QAPP (see Appendix A of this Plan). Procedures for the vegetation monitoring field activities are presented in Section 4.3.2 of the FSP (included in Appendix B of this Plan). The ET cap topsoil depth monitoring results will be summarized in the Annual Report. This monitoring program consists of the following elements:

Inspections: Each of the topsoil depth indicators on the ET cap surface will be visually inspected semi-annually to determine if the topsoil depth indicators are clear, accessible, and undamaged. Any issues requiring attention or maintenance on the topsoil depth indicators are to be noted on inspection and maintenance forms. Inspection records will be maintained in the Operating Record on-site as described in Section 4.0.

Sampling and/or Measurements: Topsoil depth on each ET cap surface will be measured semi-annually. To monitor topsoil depth on the ET caps, the distance from the surface of the topsoil to the inscribed reference line on each topsoil depth indicator will be measured and recorded. Topsoil loss at each indicator will be determined as the difference between the installed topsoil level (the original level as indicated on the form) and the current topsoil level (as measured).

Maintenance Activities: Any maintenance necessary to clear access to or repair topsoil depth indicators will be performed as soon as practicable so as not to cause any delay for the next scheduled monitoring event.

If the topsoil measurement shows 5 inches of loss below the installed thickness at 50-percent of the indicators on a given ET cap surface, the total ET cap surface area will be evaluated within 30 days. The entire ET cap surface will be surveyed to prepare a current cap surface elevation contour map. The current surface elevations will be compared to the final as-built final cap elevations documented in the ET cap as-built drawings. If more than 50-percent of the ET cap surface shows 5 inches or more of loss below the as-built surface, maintenance (e.g., replacement of topsoil and reseeding) will be performed as soon as practicable on that ET cap surface. Topsoil replacement will not be performed if frozen soil / snow cover / highly muddy conditions

exist (typically between November 15 through April 15 annually) at the ET cap surface where topsoil replacement is required. However, if delayed by surface conditions topsoil replacement will commence within seven (7) days of the presence of acceptable cap surface conditions. Commencement of repairs and/or maintenance means starting actual field work for simple or minor maintenance, or initiation of engineering, planning and/or procurement of additional materials to perform the maintenance and/or repairs for more complex or larger scale maintenance. As stated in Section 3.1.1.1, any reseeding required following topsoil replacement will be performed in the fall (typically in September - October). All necessary repairs will be performed by FMC. Documentation of all repairs and maintenance activities will be maintained in the Operating Record on-site as described in Section 4.0. All repairs to the ET cap surface will be conducted in accordance with the procedures specified in the final ET cap design construction specifications, and all testing and inspections will be conducted in accordance with the final ET cap construction *CQA Plan*.

3.1.1.3 Stormwater Erosion/Damage Monitoring

The objective of the ET cap run-on and run-off erosion monitoring program is to determine if water erosion from run-on or run-off has removed or re-distributed topsoil to the extent that the final cap capabilities may be impaired. The DQOs for stormwater erosion/damage monitoring are presented in Table 1.1 of the QAPP (see Appendix A of this Plan). Procedures for the stormwater erosion/damage monitoring field activities are presented in Section 4.3.3 of the FSP (included in Appendix B of this Plan). The ET cap stormwater erosion/damage monitoring results will be summarized in the Annual Report. This monitoring program consists of the following elements:

Inspections: Each ET cap surface will be visually inspected (1) semi-annually, and (2) within 48 hours of a 25-year, 24-hour storm event defined as 2.1 inches (or more) of precipitation within a 24 hour period (NOAA, 1973) as reported for the Pocatello airport weather station. The objective of these visual inspections will be to determine if ET cap surface erosion or ponding has occurred. The criterion for localized erosion or ponding requiring maintenance has been established as an area of 100 square feet (a 10 foot by 10 foot or 11 foot diameter area) or greater where precipitation ponding is observed or could occur to a depth of 1 inch of water or greater. Diversion, retention, and drainage structures will also be inspected for damage and accumulation of debris or sediment. Damage that could impair the functionality of the diversion, retention, and drainage structures will be noted and described. Any issues requiring maintenance will be noted on inspection and maintenance forms. Inspection records will be maintained in the Operating Record on-site as described in Section 4.0.

Sampling and/or Measurements: This is a qualitative, rather than quantitative assessment, i.e., no routine sampling, measurement or analysis is performed as part of this monitoring.

Maintenance Activities: Any maintenance shown to be required based on inspection of the ET cap surface and diversion structures will be performed as soon as practicable. Maintenance or repairs to the diversion, retention, and drainage structures that could impair the functionality of these structures and maintenance and/or repairs to eliminate or prevent potential ponding on the

cap surface will commence within seven (7) days unless delayed as specified below. Commencement of repairs and/or maintenance means starting actual field work for simple or minor maintenance, or initiation of engineering, planning and/or procurement of additional materials to perform the maintenance and/or repairs for more complex or larger scale maintenance. Maintenance or repairs will not be performed if frozen soil / snow cover / muddy conditions exist such that the cap surface could be damaged as a result of gaining access to implement the repair/maintenance activity, or if the work is not feasible due to frozen soil conditions (typically between November 15 through April 15 annually) at the ET cap surface where maintenance/repairs are required. If maintenance or repairs are delayed by surface conditions, any repairs or maintenance will commence within seven (7) days of the presence of acceptable cap surface conditions. In the event maintenance or repairs must be delayed beyond commencement within seven (7) days for cause(s) other than frozen soil / snow cover / muddy conditions, FMC will notify EPA within 48 hours of the observation of a condition for which the maintenance/repair will be delayed. The notification will include a description of the reason(s) for the necessary delay and a schedule for commencing the maintenance and/or repairs. All necessary repairs will be performed by FMC. Documentation of all repairs or maintenance activities will be maintained in the Operating Record on-site, as described in Section 4.0. All repairs to the ET cap surface will be conducted in accordance with the procedures specified in the final ET cap design construction specifications, and all testing and inspections will be conducted in accordance with the final ET cap construction *CQA Plan*.

3.1.1.4 Rodent and/or Insect Damage Monitoring

The objective of the ET cap rodent/insect infestation monitoring program is to inspect the ET cap surface to identify evidence of rodent burrowing or loss of vegetation from rodent or insect feeding. The DQOs for topsoil depth monitoring are presented in Table 1.1 of the QAPP (see Appendix A of this Plan). Procedures for the rodent/insect damage monitoring field activities are presented in Section 4.3.4 of the FSP (included in Appendix B of this Plan). The ET cap rodent/insect damage monitoring results will be summarized in the Annual Report. This monitoring program consists of the following elements:

Inspections: Each ET cap surface will be visually inspected semi-annually for evidence of rodent burrowing or loss of vegetation as result of rodent/insect feeding that, in the judgment of the inspector, could reasonably be expected to result in vegetation coverage below the target density per surface vegetation monitoring (discussed in Section 3.1.1.1) or excessive soil erosion (discussed in Section 3.1.1.3) that could compromise the integrity and functionality of the cap system. Any issues requiring attention or maintenance will be noted on inspection and maintenance forms. Inspection records will be maintained in the Operating Record on-site as described in Section 4.0.

Sampling and/or Measurements: This is a qualitative, rather than quantitative assessment, i.e., no routine sampling, measurement or analysis is performed as part of this monitoring.

Maintenance Activities: Any required maintenance noted during the inspection of the ET cap surface, for example to fill holes or burrows or correct the loss of vegetation, will be performed

as soon as practicable. Maintenance to fill holes or burrows will not be performed if frozen soil/snow cover/highly muddy conditions exist (typically between November 15 through April 15) at the ET cap where the maintenance is required. If delayed by surface conditions, work to fill holes/burrows will commence within seven (7) days of the presence of acceptable cap surface conditions. Localized reseeding may be performed during the spring (typically March through May). However, if reseeding is otherwise required pursuant to Section 3.1.1.1 to re-establish the cap vegetation, the reseeding will be done in the fall (typically in September - October). Burrowing or insect activity may also warrant the use of pesticides to eradicate the pest. Documentation of all repairs and maintenance activities will be maintained in the Operating Record on-site, as described in Section 4.0.

3.1.2 Monitoring Requirements for ET Caps in Areas with P4

The monitoring requirements for ET caps in areas with P4 are summarized in Table 3.2. The post-remedial monitoring and maintenance elements shown in Table 3.2 apply to ET caps over areas RA-B, RA-C, RA-K, RA-F1, and RA-F2, where elemental phosphorous may exist (see Figure 2-2). These inspection and monitoring elements are the same as included for ET caps in non-P4 areas (as described above in Section 3.1.1), plus three additional monitoring components:

1. Monitoring of one settlement monument that will be re-established for the Slag Pit Sump settlement monument at the ground surface level of the ET cap at that location within RA-B;

2. Monitoring for phosphine gas at the ET caps, and

3. Monitoring for soil chemistry changes due to the potential decomposition of phosphine gas within the soil.

The monitoring schedule and procedures, unacceptable conditions (action triggers) and associated (maintenance) response actions for each of these monitoring components are summarized in Table 3.2 and presented below.

3.1.2.1 Slag Pit Sump Settlement Monitoring

The objective of the slag pit cap settlement monitoring program is to determine if excessive settlement or movement of the materials used in the construction of that cap is taking place above the unit. The DQOs for slag pit sump settlement monitoring are presented in Table 1.2 of the QAPP (see Appendix A of this Plan). Procedures for the slag pit sump settlement monitoring field activities are presented in Section 4.4.1 of the FSP (included in Appendix B of this Plan). The slag pit sump settlement monitoring results will be summarized in the Annual Report. This monitoring program consists of the following elements:

Inspections: The settlement monuments at the ground level surface of the slag pit sump area will be visually inspected to determine if the settlement monument is clear, accessible, and undamaged. This will be determined by the displacement measurement surveys described

below. Any cap settlement monument issues requiring attention or maintenance will be noted on inspection and maintenance forms. Inspection records will be maintained in the Operating Record on-site as described in Section 4.0.

Sampling and/or Measurements: To monitor any settlement of the slag pit sump cap, the elevation and coordinates of the settlement monument will be surveyed to determine the vertical and horizontal components of the final cover monument. For accuracy, a surveying instrument will be used to take measurements with the following tolerances:

- Elevation readings: 0.01 foot
- Horizontal displacement: 0.1 foot

Elevation and displacement measurements will be plotted cumulatively versus time. The time scale will be in logarithm of time or square root of time. The settlement curve will be kept up to date with each reading. The displacement measurements (vertical and horizontal movements) will be made annually during the remaining post-closure period or until the total cumulative movements for the previous five years are less than the following limits:

- Vertical settlement: 0.03 foot
- Horizontal movement: 0.2 foot

Displacement measurements will be made (1) annually and then every five years during the post-closure period after the above limits are reached; (2) if visible subsidence is noted during semiannual run-on and/or run-off erosion monitoring or other monitoring and/or maintenance; and (3) after local seismic events. The criterion for visible subsidence requiring settlement monitoring has been established as an area of 100 square feet (a 10 foot by 10 foot or 11 foot diameter area) or greater where precipitation ponding is observed or could occur to a depth of 1 inch of water or greater. A triggering seismic event is defined as an event that (1) exceeds a magnitude 5.0 on the Richter Scale with an epicenter within a 20-mile radius as reported by USGS or (2) exceeds a magnitude 6.0 on the Richter Scale with an epicenter within a 50-mile radius as reported by USGS. Settlement monitoring will be based on control stations "94-1" and "94-4," which are local stations in FMC's survey control system. The coordinates for these stations were derived from the U.S. Coast & Geodetic Survey (US C&GS) Control Station MCDOUGAL-2 and BM Y-96. The vertical datum is based on the 1968 adjustment of the National Geodetic Vertical Datum of 1929 (NGVD 29) by the US C&GS.

Maintenance Activities: Any maintenance necessary to clear access to or repair the settlement monument will be performed as soon as practicable so as not to cause any delay for the next scheduled monitoring event.

An area of 100 square feet (a 10 foot by 10 foot or 11 foot diameter area) or greater where precipitation ponding is observed or could occur to a depth of 1 inch of water or greater will

require maintenance as soon as practicable. Repairs and/or maintenance to eliminate or prevent potential ponding on the cap surface will commence within seven (7) days unless delayed as specified below. Commencement of repairs and/or maintenance means starting actual field work for simple or minor maintenance, or initiation of engineering, planning and/or procurement of additional materials to perform the maintenance and/or repairs for more complex or larger scale maintenance. Maintenance or repairs will not be performed if frozen soil/snow cover/muddy conditions exist such that the cap surface could be damaged as a result of gaining access to implement the repair/maintenance activity, or the work is not feasible due to frozen soil conditions (typically between November 15 through April 15 annually) at the ET cap where maintenance/repairs are required. If maintenance or repairs are delayed by surface conditions, any repairs or maintenance will commence within seven (7) days of the presence of acceptable cap surface conditions. In the event maintenance or repairs must be delayed beyond commencement within seven (7) days for cause(s) other than frozen soil / snow cover / muddy conditions, FMC will notify EPA within 48 hours of the observation of a condition for which the maintenance/repair will be delayed. The notification will include a description of the reason(s) for the necessary delay and a schedule for commencing the maintenance and/or repairs.

All repairs to the ET cap surface at the slag pit sump will be conducted in accordance with the procedures specified in the final ET cap design construction specifications, and all testing and inspections will be conducted in accordance with the final ET cap construction *CQA Plan*. All necessary repairs will be performed by FMC. Documentation of all repairs and maintenance activities will be maintained in the Operating Record on-site, as described in Section 4.0.

3.1.2.2 ET Cap Phosphine (PH3) Monitoring

The objective of the ET cap PH3 monitoring program is to determine if PH3 gas is accumulating under the ET caps and/or if PH3 gas emissions are escaping the ET caps in concentrations that pose a threat to human health or the environment. Phosphine monitoring will be performed only at ET caps that cover areas of known or suspected P4, i.e., at RA-B, RA-C, RA-K, RA-F1, and RA-F2. The DQOs for ET cap PH3 monitoring are presented in Table 1.2 of the QAPP (see Appendix A of this Plan). A decision flowchart for PH3 monitoring is presented in Figure 3-2. Procedures for the ET cap PH3 monitoring field activities are presented in Section 4.4.2 of the FSP (included in Appendix B of this Plan). The ET cap PH3 monitoring results will be summarized in the Annual Report. This monitoring program consists of the following elements:

Inspections: The ET caps where P4 may be present will be visually inspected to determine if there is any evidence at the cap surface indicating PH3 emissions or change in soil chemistry (e.g., distressed vegetation or bulging/heaving soils). Any issues requiring attention or maintenance on the cap will be noted on inspection and maintenance forms. Inspection records will be maintained in the Operating Record on-site as described in Section 4.0.

Sampling and/or Measurements: Because any PH3 generation and/or accumulation within the ET cap would be first detected at the capillary break layer of the ET cap, soil gas monitoring within the capillary break layer will be the primary monitoring method (see Figure 3-3 for soil

gas probe design). Phosphine concentrations will be measured in soil gas probes installed within the capillary break layer above known or suspected areas of P4 at each discrete ET cap surface area (see description in section 3.1). PH3 monitoring procedures as developed for the RCRA Pond PH3 soil gas monitoring will be utilized (as described in Section 4.4.2 of the FSP in Appendix B).

Soil gas PH3 measurements will be made semi-annually during the first five years. If any soil gas monitoring point exceeds an action level of 0.05 ppm PH3, the following actions will be triggered:

- First, the soil gas monitoring location exceeding the action level will be sampled again within five (5) business days to confirm the exceedance of the action level. This re-sampling is appropriate, as there are several known interferences (i.e., engine exhaust, sulfur oxides, etc.) that can give a false positive reading on the PH3 monitor.

- If the re-sample of the soil gas probe confirms the exceedance of the action level, then additional monitoring will be performed to determine if PH3 gas is escaping the ET cap into the ambient air. This additional ambient air monitoring will involve taking Industrial Hygiene (IH) ambient air measurements (4 feet above the ground surface) at and around the soil gas probe, performing a surface scan over the affected ET cap surface area, and monitoring ambient air in nearby low-lying areas (if nearby low-lying areas exist). If any ambient air monitoring (IH ambient air, surface scan, or low-lying areas) exceeds an action level of 0.05 ppm PH3, and is confirmed to be PH3 (as opposed to known interferences such as engine exhaust and sulfur oxides), the following actions will be triggered:
    - First, if any of the ambient air monitoring equals or exceeds 1.0 ppm, fenceline monitoring will be initiated within 15 minutes of a confirmed PH3 detection at or above 1.0 ppm. The fenceline monitoring would be performed using methods and equipment consistent with the RCRA pond monitoring.
    - If any ambient air monitoring exceeds an action level of 0.05 ppm PH3 (but is less than 1.0 ppm PH3), the ambient air monitoring will be re-sampled within 2 hours to confirm the initial result.
    - If the re-sample of the ambient air remains above the action level, then FMC would propose an enhanced PH3 monitoring program to EPA for that ET cap surface area, which would include a more detailed surface scan to determine if a localized area or specific surface source (e.g., surface crack or rodent hole) can be identified. This enhanced monitoring may include one or more of the following elements:
        - Increased monitoring frequency,
        - Additional soil gas monitoring locations, and
        - Additional ambient air and/or surface scan monitoring.
    - Also, if the re-sample of the soil gas probe remains above the action level of 0.05 ppm PH3, then sampling of critical ET cap soil properties will be performed as described in Section 3.1.2.3 below.

Maintenance Activities: Any required maintenance noted during the inspection of the ET cap surface or as result of enhanced PH3 monitoring, for example to fill holes, cracks, or burrows, or correct the loss of vegetation, will be performed as soon as practicable. Maintenance to fill holes, cracks, or burrows will not be performed if frozen soil/snow cover/highly muddy conditions exist (typically between November 15 through April 15 annually) at the ET cap area where the maintenance is required. If delayed by surface conditions, work to fill holes, cracks or burrows or correct the loss of vegetation will commence within seven (7) days of the presence of acceptable cap surface conditions. Localized reseeding may be performed during the spring (typically March through May). However, if reseeding is otherwise required pursuant to Section 3.1.1.1 to re-establish vegetation, the reseeding will be performed in the fall (typically in September - October). Burrowing activity may also warrant the use of pesticides to eradicate the pest. Documentation of all repairs and maintenance activities will be maintained in the Operating Record on-site, as described in Section 4.0.

All repairs to the ET cap surface will be conducted in accordance with the procedures specified in the final ET cap design construction specifications, and all testing and inspections will be conducted in accordance with the final ET cap construction *CQA Plan*. All necessary repairs will be performed by FMC. Documentation of all repairs and maintenance activities will be maintained in the Operating Record on-site as described in Section 4.0.

3.1.2.3 ET Cap Soil Chemistry Monitoring

If triggered by ET cap PH3 monitoring, ET cap soil chemistry monitoring will be commenced. The objective of this monitoring program would be to determine if the presence of PH3 (and/or PH3 reaction products) within the ET cap is changing the properties of the ET cap soil in a way that prevents the ET cap from performing as designed. The DQOs for ET cap soil chemistry monitoring are presented in Table 1.2 of the QAPP (see Appendix A of this Plan). Procedures for the ET cap soil chemistry monitoring field activities are presented in Section 4.4.3 of the FSP (included in Appendix B of this Plan). If triggered by ET cap PH3 monitoring, the ET cap soil chemistry monitoring results will be summarized in the Annual Report. This monitoring program consists of the following elements:

Inspections: The ET caps where P4 may be present will be visually inspected to determine if there is any evidence at the cap surface indicating PH3 emissions or change in soil chemistry (e.g., distressed vegetation or bulging/heaving soils). Any issues requiring attention or maintenance on the cap are to be noted on inspection and maintenance forms. Inspection records will be maintained in the Operating Record on-site as described in Section 4.0.

Sampling and/or Measurements: If confirmed soil gas probe monitoring results indicate that PH3 is accumulating in the ET cap capillary break layer (as measured at $\geq$ 0.05 ppm PH3), then sampling of critical ET cap soil properties will be initiated. Samples of the ET cap soil (top 12 inches) would be monitored for soil pH in the immediate area of the soil gas probe where the exceedance was detected. These soil pH results would be compared to the baseline soil pH as reported in *Remedial Design Data Gap Report for the FMC Plant OU – January 2014* to

determine if the pH is being significantly altered. If the soil PH3 has been altered outside the range of 5.0 to 9.0, soil densities in the same area (to a depth of 24 inches) would be measured and compared to the soil density specifications of the RD. If ET cap soil densities have altered outside the range of 80% of maximum dry density to 90% of maximum dry density, a work plan will be developed and submitted to EPA proposing further action(s) to evaluate the changes in the soil properties.

Maintenance Activities: Any required maintenance noted during the inspection of the ET cap surface or as result of ET cap soil chemistry monitoring, will be performed as soon as practicable after approval of the work plan. Maintenance on the ET cap will not be performed if frozen soil/snow cover/highly muddy conditions exist (typically between November 15 through April 15 annually) at the ET cap area where the maintenance is required. If delayed by surface conditions, maintenance will commence within seven (7) days of the presence of acceptable cap surface conditions. Localized reseeding may be performed during the spring (typically March through May) but if reseeding is otherwise required pursuant to Section 3.1.1.1 to re-establish vegetation, reseeding will be performed in the fall (typically in September - October). Documentation of all repairs and maintenance activities will be maintained in the Operating Record on-site, as described in Section 4.0.

3.2 GAMMA CAPS

The gamma caps are designed to prevent exposure via all viable pathways (external gamma radiation, incidental soil ingestion, dermal absorption, and fugitive dust inhalation) to soils and solids contaminated with COCs that would result in an unacceptable risk to human health under current and reasonably anticipated future land use.

3.2.1 Monitoring Requirements for Gamma Caps

The monitoring requirements for gamma caps are summarized in Table 3.3. The post-remedial monitoring and maintenance elements shown in Table 3.3 apply to gamma caps over areas RA-A, RA-F, and RA-G. (see Figure 2-2).

Each gamma cap will be subjected to the following inspections and monitoring requirements

1. Routine inspection:
    a. signs of stormwater erosion/damage;
    b. rodent and/or insect damage, and
    c. stormwater diversion controls.
2. Contingent inspection for signs of stormwater erosion/damage to the cap, stormwater and diversion controls (implemented within seven days after a 25-year storm, 24-hour storm or a seismic event).

The monitoring schedule and procedures, unacceptable conditions (action triggers) and associated (maintenance) response action for each of these monitoring components are summarized in Table 3.3 and presented below.

3.2.1.1 Stormwater Erosion/Damage Monitoring

The objective of the gamma cap run-on and/or run-off erosion monitoring program is to determine if water erosion from run-on or run-off has removed or re-distributed topsoil to the extent that the final cap capabilities may be impaired. The DQOs for gamma cap stormwater erosion/damage monitoring are presented in Table 1.3 of the QAPP (see Appendix A of this Plan). Procedures for the stormwater erosion/damage monitoring field activities are presented in Section 4.5.1 of the FSP (included in Appendix B of this Plan). The gamma cap stormwater erosion/damage monitoring results will be summarized in the Annual Report. This monitoring program consists of the following elements:

Inspections: Each gamma cap surface will be visually inspected (1) semi-annually, and (2) within 48 hours of a 25-year, 24-hour storm event defined as 2.1 inches (or more) of precipitation within a 24 hour period (NOAA, 1973) as reported for the Pocatello airport weather station. The objective of these visual inspections will be to determine if gamma cap surface erosion or ponding has occurred. The criterion for localized erosion or ponding requiring maintenance has been established as an area of 100 square feet (a 10 foot by 10 foot or 11 foot diameter area) or greater where precipitation ponding is observed or could occur to a depth of 1 inch of water or greater. Diversion, retention, and drainage structures will also be inspected for damage and accumulation of debris or sediment. Damage that could impair the functionality of the diversion, retention, and drainage structures will be noted and described. Any issues requiring maintenance will be noted on inspection and maintenance forms. Inspection records will be maintained in the Operating Record on-site, as described in Section 4.0.

Sampling and/or Measurements: This is a qualitative, rather than quantitative assessment, i.e., no routine sampling, measurement or analysis is performed as part of this monitoring.

Maintenance Activities: Any maintenance shown to be required based on inspection of the gamma cap surface and diversion structures will be performed as soon as practicable. Maintenance or repairs to the diversion, retention, and drainage structures that could impair the functionality of these structures and maintenance and/or repairs to eliminate or prevent potential ponding on the cap surface will commence within seven (7) days unless delayed as specified below. Commencement of repairs and/or maintenance means starting actual field work for simple or minor maintenance, or initiation of engineering, planning and/or procurement of additional materials to perform the maintenance and/or repairs for more complex or larger scale maintenance. Maintenance or repairs will not be performed if frozen soil / snow cover / muddy conditions exist such that the cap surface could be damaged as a result of gaining access to implement the repair/maintenance activity, or if the work is not feasible due to frozen soil conditions (typically between November 15 through April 15 annually) at the gamma cap surface where maintenance/repairs are required. If maintenance or repairs are delayed by surface conditions, any repairs or maintenance will commence within seven (7) days of the presence of

acceptable cap surface conditions. In the event maintenance or repairs must be delayed beyond commencement within seven (7) days for cause(s) other than frozen soil / snow cover / muddy conditions, FMC will notify EPA within 48 hours of the observation of a condition for which the maintenance/repair will be delayed. The notification will include a description of the reason(s) for the necessary delay and a schedule for commencing the maintenance and/or repairs. All necessary repairs will be performed by FMC. Documentation of all repairs or maintenance activities will be maintained in the Operating Record on-site, as described in Section 4.0. All repairs to the gamma cap surface will be conducted in accordance with the procedures specified in the final gamma cap design construction specifications, and all testing and inspections will be conducted in accordance with the final gamma cap construction *CQA Plan*.

3.1.1.2 Rodent and/or Insect Damage Monitoring

The objective of the gamma cap rodent/insect infestation monitoring program is to inspect the gamma cap surface to identify evidence of rodent burrowing or loss of vegetation from rodent or insect feeding. . The DQOs for topsoil depth monitoring are presented in Table 1.3 of the QAPP (see Appendix A of this Plan). Procedures for the rodent/insect damage monitoring field activities are presented in Section 4.5.2 of the FSP (included in Appendix B of this Plan). The gamma cap rodent/insect damage monitoring results will be summarized in the Annual Report. This monitoring program consists of the following elements:

Inspections: Each gamma cap surface will be visually inspected semi-annually for evidence of rodent burrowing or loss of vegetation as result of rodent/insect feeding that, in the judgment of the inspector, could reasonably be expected to result in vegetation coverage below the target density (discussed in Section 3.1.1.1) or excessive soil erosion (discussed in Section 3.1.1.3) that could compromise the integrity and functionality of the cap system. Any issues requiring attention or maintenance will be noted on inspection and maintenance forms. Inspection records will be maintained in the Operating Record on-site as described in Section 4.0.

Sampling and/or Measurements: This is a qualitative, rather than quantitative assessment, i.e., no routine sampling, measurement or analysis is performed as part of this monitoring.

Maintenance Activities: Any required maintenance noted during the inspection of the gamma cap surface, for example to fill holes or burrows or correct the loss of vegetation, will be performed as soon as practicable. Maintenance to fill holes or burrows will not be performed if frozen soil/snow cover/highly muddy conditions exist (typically between November 15 through April 15 annually) at the gamma cap where the maintenance is required. If delayed by surface conditions, work to fill holes or burrows will commence within seven (7) days of the presence of acceptable cap surface conditions. In the event that loss of vegetation is identified during the inspection, localized reseeding may be performed during the spring (typically March through May) or fall (typically in September to October). Burrowing or insect activity may also warrant the use of pesticides to eradicate the pest. Documentation of all repairs and maintenance activities will be maintained in the Operating Record on-site, as described in Section 4.0.

3.3 SITE-WIDE STORM WATER MANAGEMENT SYSTEM

The site-wide grading plan was developed to provide site-wide stormwater management and elevation contours for the subgrade to receive the ET and gamma caps. Site-wide stormwater management includes capture, conveyance and detention systems that minimize erosion and diverts water from the planned and existing capped areas. It also includes integration of new and existing stormwater conveyance systems and access roads so that the zero stormwater discharge status of the FMC plant site is maintained.

3.3.1 Monitoring Requirements for Site-Wide Stormwater Management System

The monitoring requirements for site-wide stormwater runoff are summarized in Table 3.4. The post-remedial monitoring and maintenance elements shown in Table 3.4 apply to site-wide stormwater runoff management infrastructure, consisting of stormwater detention basins and stormwater diversion controls not otherwise inspected as a component of a gamma cap or ET cap, or an existing RCRA or Calciner Pond cap.

Site-wide stormwater runoff controls will be subjected to the following inspections and monitoring requirements

1. Routine inspection:
    a. signs of stormwater erosion/damage;
    b. stormwater diversion controls, and
    c. detention ponds.
2. Contingent monitoring for erosion/damage to stormwater runoff management infrastructure to be implemented within seven days after a 25-year storm, 24-hour storm or a seismic event.

The monitoring schedule and procedures, unacceptable conditions (action triggers) and associated (maintenance) response action for each of these monitoring components are summarized in Table 3.4 and presented below.

3.3.1.1 *Stormwater Erosion/Damage Monitoring*

The objective of the site-wide stormwater management system monitoring program is to determine if water erosion from run-on or run-off has damaged any component of the stormwater management system to the extent that the stormwater controls may be impaired. The DQOs for site-wide stormwater management system monitoring are presented in Table 1.4 of the QAPP (see Appendix A of this Plan). Procedures for the site-wide stormwater management system monitoring field activities are presented in Section 4.6 of the FSP (included in Appendix B of

this Plan). The site-wide stormwater management system monitoring results will be summarized in the Annual Report. This monitoring program consists of the following elements:

Inspections: Each component of the site-wide stormwater management system (diversion, retention, and drainage structures) will be visually inspected (1) semi-annually, and (2) within 48 hours of a 25-year, 24-hour storm event defined as 2.1 inches (or more) of precipitation within a 24 hour period (NOAA, 1973) as reported for the Pocatello airport weather station. The objective of these visual inspections will be to determine if erosion, sedimentation, ponding or accumulation of debris has occurred. Damage that could impair the functionality of the diversion, retention, and drainage structures will be noted and described. Any issues requiring maintenance are to be noted on inspection and maintenance forms. Inspection records will be maintained in the Operating Record on-site as described in Section 4.0.

Sampling and/or Measurements: This is a qualitative, rather than quantitative assessment, i.e., no routine sampling, measurement or analysis is performed as part of this monitoring.

Maintenance Activities: Any maintenance shown to be required based on inspection of the site-wide stormwater management system components will be performed as soon as practicable. Maintenance or repairs to the diversion, retention, and drainage structures that could impair the functionality of these structures and maintenance and/or repairs to eliminate or prevent potential ponding on a cap surface will commence within seven (7) days unless delayed as specified below. Commencement of repairs and/or maintenance means starting actual field work for simple or minor maintenance, or initiation of engineering, planning and/or procurement of additional materials to perform the maintenance and/or repairs for more complex or larger scale maintenance. Maintenance or repairs will not be performed if frozen soil / snow cover / muddy conditions exist such that stormwater management system components could be damaged as a result of gaining access to implement the repair/maintenance activity or are not feasible due to frozen soil conditions (typically between November 15 through April 15 annually). If maintenance or repairs are delayed by surface conditions, any repairs or maintenance will commence within seven (7) days of the presence of acceptable surface conditions. In the event maintenance or repairs must be delayed beyond seven (7) days for cause(s) other than frozen soil / snow cover / muddy conditions, FMC will notify EPA within 48 hours of the observation of a condition for which the maintenance/repair will be delayed. The notification will include a description of the reason(s) for the necessary delay and a schedule for commencing the maintenance and/or repairs. All necessary repairs will be performed by FMC. Documentation of all repairs or maintenance activities will be maintained in the Operating Record on-site, as described in Section 4.0. All repairs to a stormwater management system component will be conducted in accordance with the procedures specified in the final stormwater management system design construction specifications, and all testing and inspections will be conducted in accordance with the stormwater management system construction *CQA Plan*.

3.4 SITE SECURITY SYSTEMS

The monitoring requirements for site security systems are summarized in Table 3.5. The post-remedial monitoring and maintenance elements shown in Table 3.5 apply to the site-wide security system infrastructure that is not otherwise inspected as a component of an existing

RCRA or Calciner Pond cap. The DQOs for site security system monitoring are presented in Table 1.5 of the QAPP (see Appendix A of this Plan).

Site security systems will be subjected to the following inspections and monitoring requirements

1. Routine inspection:
    a. Fencing;
    b. Gates; and
    c. Signage
2. Review of security breaches to evaluate the need for security system improvements.

The monitoring schedule and procedures, unacceptable conditions (action triggers) and associated (maintenance) response action for each of these monitoring components are summarized in Table 3.5 and presented below.

3.4.1 Monitoring Requirements for Site Security Systems

The objective of the site security system monitoring is to ensure that site security systems are in place, functional, and maintained. Site security systems for the FMC Plant Site include fencing, secured gates, and warning signs. Warning signs have been or will be posted on each vehicle gate and man gate located along the FMC Plant Site property boundary. Procedures for the site security system monitoring field activities are presented in Section 4.7 of the FSP (included in Appendix B of this Plan).

The monitoring requirements for site security systems are summarized in Table 3.5. The post-remedial monitoring and maintenance elements shown in Table 3.5 apply to the site-wide infrastructure consisting of fencing, gates, and signage.

The stated performance standard for site-wide security is that the site security systems will be installed and maintained to minimize unauthorized entry onto the FMC plant site. Site-wide security systems will be evaluated using the following metrics (see Table 5):

1. Routine semi-annual inspection of site-wide security infrastructure including fences, gates, and signage.
2. Review of security breaches to evaluate the need for security system improvements.

The unacceptable conditions (action triggers) for each of these monitoring metrics are summarized in Table 5 along with the associated response action. These metrics are discussed in more detail below.

3.4.1.1 *Monitoring for Site Security Systems*

The site security system inspections are listed below. This monitoring is based upon observation of security system conditions rather than measurements.

Inspections: Each component of the site security systems (fences, gates, and signage) will be visually inspected (1) semi-annually, (2) and within 48 hours of a documented security breach. A security breach will be defined as any unauthorized persons entering the FMC Plant Site beyond the main gate kiosk. The objective of these visual inspections will be to 1) verify that the perimeter fencing around the FMC Plant Site is in place and in good repair, 2) verify that the gates are closed and locked, except when workers are present within the fenced area, 3) verify that signage is in place and legible, and 4) determine whether there is any evidence of unauthorized entry or attempted entry into the fenced FMC Plant Site. Missing, damaged, or non-functioning security system components will be noted and described. Any issues requiring maintenance will be noted on inspection and maintenance forms. Inspection records will be maintained in the Operating Record on-site as described in Section 4.0.

Sampling and/or Measurements: This is a qualitative, rather than quantitative assessment, i.e., no routine sampling, measurement or analysis is performed as part of this monitoring.

Maintenance Activities: Any maintenance shown to be required based on inspection of the site security system components will be performed as soon as practicable. Maintenance or repairs to the fencing, gates, and/or signage that could impair the functionality of site security systems will commence within seven (7) days unless delayed as specified below. Commencement of repairs and/or maintenance means starting actual field work for simple or minor maintenance, or initiation of engineering, planning and/or procurement of additional materials to perform the maintenance and/or repairs for more complex or larger scale maintenance. Maintenance or repairs will not be performed if conditions exist such that caps, roadways, or stormwater management system components could be damaged as a result of gaining access to implement the repair/maintenance activity, or if the work is not feasible due to frozen soil conditions (typically between November 15 through April 15 annually). If maintenance or repairs are delayed by surface conditions, any repairs or maintenance will commence within seven (7) days of the presence of acceptable surface conditions. In the event maintenance or repairs must be delayed beyond commencement within seven (7) days for cause(s) other than frozen soil / snow cover / muddy conditions, FMC will notify EPA within 48 hours of the observation of a condition for which the maintenance/repair will be delayed. The notification will include a description of the reason(s) for the necessary delay and a schedule for commencing the maintenance and/or repairs. All necessary repairs will be performed by FMC. Documentation of all repairs or maintenance activities will be maintained in the Operating Record on-site as described in Section 4.0. All repairs to a site security system component will be conducted in accordance with the procedures specified in the final site security system design construction specifications.

3.5 CAP MAINTENANCE

The purpose of the cap maintenance procedures is to ensure that maintenance activities do not disturb the long-term integrity of the cap and ensure that materials and maintenance practices are

consistent with the final cover design and specifications. All cover repairs and/or reconstruction will be conducted in a manner that maintains, and as needed restores, the integrity of the as-built final cover system.

3.6 ENGINEERING CONTROLS

The purpose of the engineering controls are to ensure that site access is controlled through fences, entrance gate controls, site entrance logs, warning signs, and training requirements. Site engineering controls will be inspected semi-annually to ensure they remain functional. Should damage be observed, maintenance will be conducted as soon as practicable to maintain and as necessary restore the integrity of the engineering controls.

DRAWN BY D. Severson

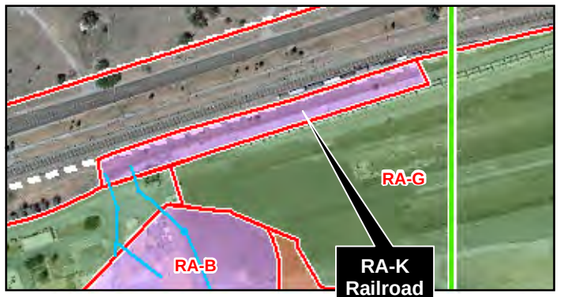
9 Jan 2015

I:\projects\FMCIdaho\FMC_OM_M PLAN\FIGURES\Fig 3-1_ET Cap Surf Des for Monitoring_Jan2015.mxd

Legend

- Remediation Area (RA) Surface
- Property Boundary
- Gamma Cap Surface
- ET Cap (non-P4 RA) Surface
- ET Cap (P4 RA) Surface
- RCRA Cap
- Calciner Pond Cap
- PROCESS PIPING
  - CO line with P4
  - Phossy H_2O
  - Precipitator slurry
- Storm sewer drain with phossy H_2O

DETAIL A RA-K Railroad Swale



FORT HALL RESERVATION EASTERN BOUNDARY

SEE DETAIL A

Clean Landfill Area

RA-I

RA-J

RA-K

RA-G North

RA-G South

RA-A

RA-B

RA-C East

RA-C West

RA-D West

RA-D East

RA-E North

RA-E South

RA-F1

RA-F2

RA-H East

RA-H West

WMU #9 POND 9E

WMU #10 (POND 16S)

WMU #15 POND 18 CELL A

WMU #14 POND 17

WMU #3 POND 15S

WMU #8 PHASE IV PONDS

WMU #7 POND 8S

WMU #11 POND 8E

Calciner Ponds

WESTERN UNDEVELOPED AREA

SOUTHERN UNDEVELOPED AREA

N

W E

S

0 450 900

Feet

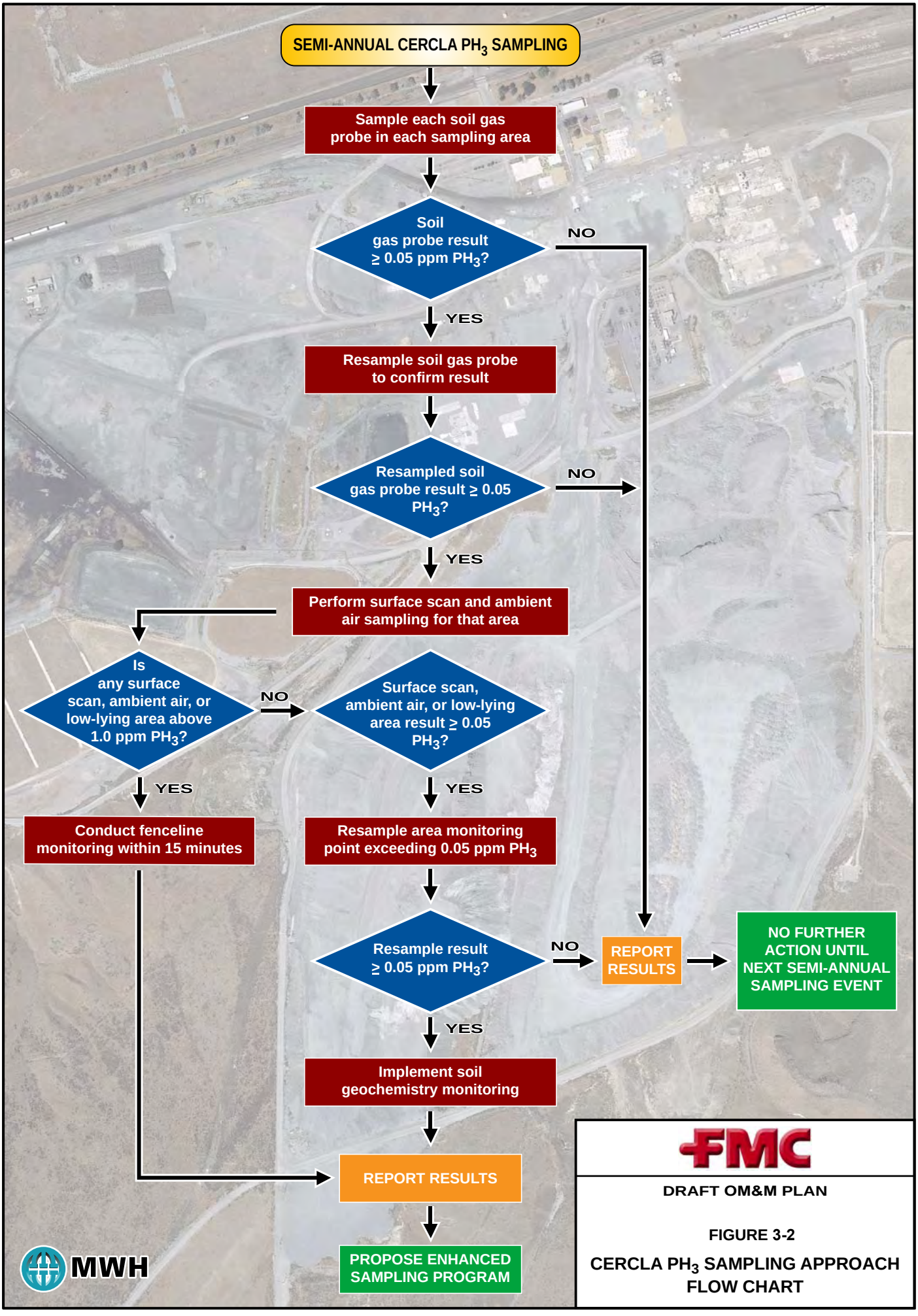
MWH

FMC

DRAFT OM & M PLAN

FIGURE 3-1

ET CAP SURFACE DESIGNATIONS FOR MONITORING



DRAWN BY D. Severson

6 Jan 2015

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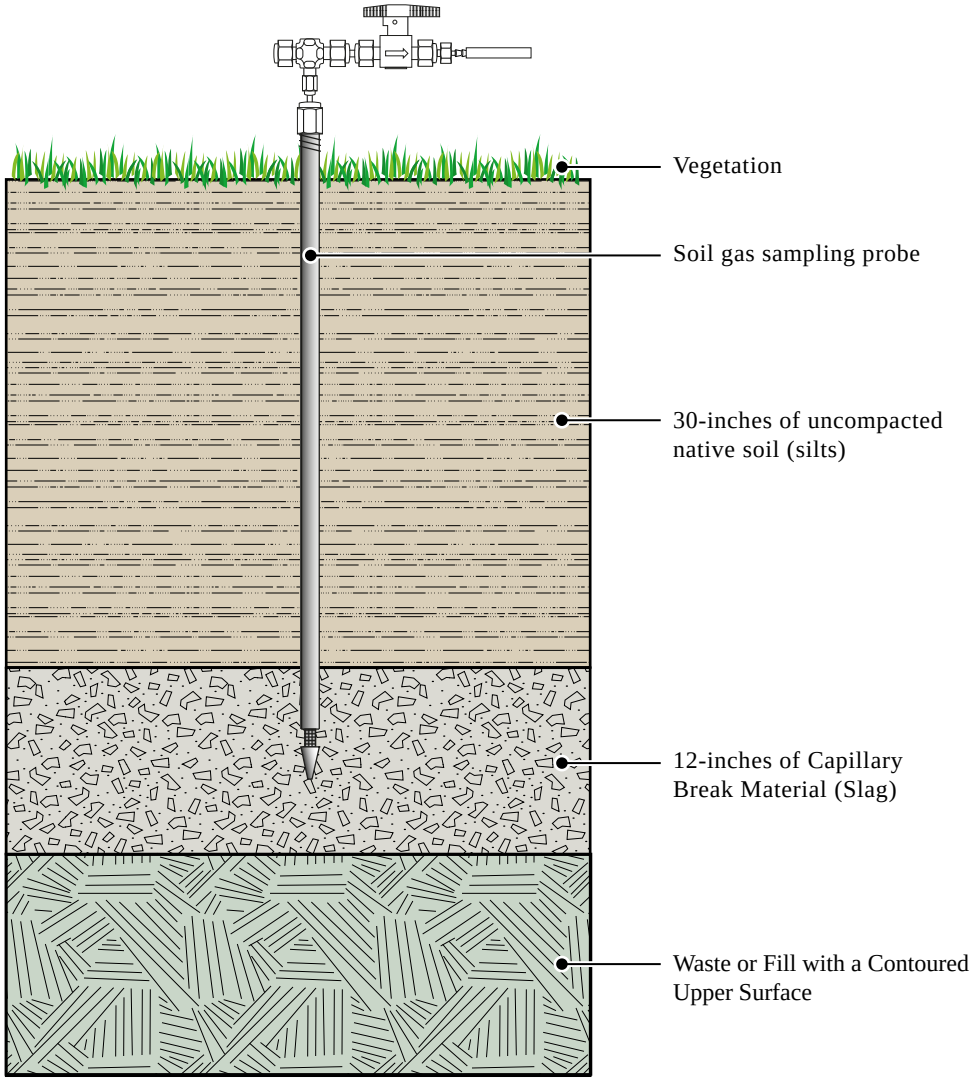

NOT TO SCALE

MWH

FMC

DRAFT OM&M PLAN

FIGURE 3-3

ANTICIPATED ET CAP

SOIL GAS PROBE DESIGN

TABLE 3.1
OPERATION, MONITORING AND MAINTENANCE PLAN SUMMARY
FOR EVAPOTRANSPIRATIVE (ET) CAPS (Non-P4 RAs)
FMC Corporation - Pocatello, Idaho

Post-Remedial Monitoring Element[1]	Measurement/Inspection	Activity Frequency	Action Trigger/Unacceptable Condition	Response Action
Routine Inspections	Topsoil Depth Indicators	Annually[2]	Visually apparent damage to, or obscured topsoil depth indicators.	Maintenance action as soon as practicable[3].
	Signs of Stormwater Erosion/Damage	Semiannually	Signs of excessive run-on/runoff cap erosion or other damage, or sediment buildup.	Maintenance action as soon as practicable[3].
	Stormwater Diversion Controls	Semiannually	Damage to or buildup within diversion control infrastructure.	Maintenance action as soon as practicable[3].
	Rodent/Insect Damage	Semiannually	Excessive rodent or insect activity causing damage to the cap.	Repair damage as soon as practicable[3].
25-Year, 24-Hour Storm, Seismic Event Inspections	Signs of Stormwater Erosion/Damage	Within 7 Days[4]	Signs of excessive run-on/run-off cap erosion or other damage, or sediment buildup.	Maintenance action as soon as practicable[3].
	Stormwater Diversion Controls	Within 7 Days[4]	Damage to or buildup within diversion control infrastructure.	Maintenance action as soon as practicable[3].
Routine Measurements	Vegetation Survey	Annually[2]	33% or more of transect plots less than 0.5 plant per square foot.	Areas of non-compliance are reseeded in the fall.
	Topsoil Depth	Annually[2]	>2 inches below installed thickness at 50% of indicators.	Evaluate topsoil on cap. If warranted, add topsoil[4] and reseed in the fall.

Notes:

[1] This list of post-remedial monitoring and maintenance elements apply to evapotranspiritive caps over areas RA-E, RA-F2, RA-H that do not contain elemental phosphorous.

[2] Cap surface vegetation and topsoil depth monitoring will be performed annually until 5 consecutive years meet the acceptable vegetation density / topsoil depth (i.e., do not exceed triggers for maintenance) after which this monitoring will be discontinued.

[3] Repairs / maintenance will commence within 7 days except if frozen soil / snow cover / muddy conditions exist such that cap surface could be damaged in order to implement the repair/maintenance activity or are not feasible due to snow cover / frozen soil conditions (possible between November through May). If maintenance / repairs are delayed by surface conditions any repairs or maintenance will commence within 7 days of the presence of acceptable cap surface conditions. In the event maintenance or repairs must be delayed beyond commencement within 7 days for cause(s) other than frozen soil / snow cover / muddy conditions,FMC will notify EPA within 48 hours of the observation of a condition for which the maintenance/repair will be delayed.

[4] The monitoring will be performed within 7 days of the triggering storm or seismic event except if not feasible due to inaccessibility to the site or snow cover(possible between November through May). If the monitoring is delayed, the monitoring will be performed within 7 days of the ability to access the site.

TABLE 3.2
OPERATION, MONITORING AND MAINTENANCE PLAN SUMMARY
FOR EVAPOTRANSPIRATIVE CAPS (RAs with P4)
FMC Corporation - Pocatello, Idaho

Post-Remedial Monitoring Element[1]	Measurement/Inspection	Activity Frequency	Action Trigger/Unacceptable Condition	Response Action
Routine Inspections	Topsoil Depth Indicators	Annually[2]	Visually apparent damage to, or obscured topsoil depth indicators.	Maintenance action as soon as practicable[4].
	Settlement Monument (Re-established for Slag Pit Sump)	Annually[3]	Visually apparent damage to, or obscured settlement monument.	Maintenance action as soon as practicable[4].
	Signs of Stormwater Erosion/Damage	Semiannually	Signs of excessive run-on/runoff cap erosion or other damage, or sediment buildup.	Maintenance action as soon as practicable[4].
	Stormwater Diversion Controls	Semiannually	Damage to or buildup within diversion control infrastructure.	Maintenance action as soon as practicable[4].
	Rodent/Insect Damage	Semiannually	Excessive rodent or insect activity causing damage to the cap.	Maintenance action as soon as practicable[4].
25-Year, 24-Hour Storm Event Inspections	Signs of Stormwater Erosion	Within 7 Days[5]	Signs of excessive run-on/run-off cap erosion or other damage, or sediment buildup.	Maintenance action as soon as practicable[4].
	Stormwater Diversion Controls	Within 7 Days[5]	Damage to or buildup within diversion control infrastructure.	Maintenance action as soon as practicable[4].
Seismic Event	Settlement Survey for Slag Pit Sump	Within 7 Days[5]	Exceeds acceptable settlement rate.	Engineering evaluation and repair of impacted cap areas.
Routine Measurements	Phosphine Gas Survey[6]	Annually for 5 Years	Soil gas measurement ≥ 0.05 ppm PH3 will trigger monitoring above ET cap surface. Any measurement above the ET cap surface ≥ 1.0 ppm PH3 will trigger fenceline monitoring.	Initiate confirmation soil gas sampling and above-cap monitoring (i.e., surface scan, ambient air, and low-lying area monitoring). If confirmed surface scan, ambient air, or low-lying area monitoring ≥ 0.05 ppm PH3, FMC will propose an enhanced PH3 monitoring program for that area. Any measurement above the ET cap surface ≥ 1.0 ppm PH3 will trigger fenceline monitoring.
	Contingent Soil Chemistry Monitoring for soil pH and soil density[7]	Annually for 5 Years	Soil chemistry monitoring for a given area will only be triggered if confirmed soil gas measurement ≥ 0.05 ppm PH3. Soil pH action trigger will be if top 12 inches of soil pH is outside the range of 5 to 9. If so, soil density action trigger will be if top 24 inches of soil has soil density outside the range of 80% of maximum dry density to 90% of maximum dry density.	Enhanced soil chemistry/properties evaluation will be proposed for a given area if soil pH and/or soil density measurements fall outside the specified trigger ranges.
	Vegetation Survey	Annually[2]	33% or more of transect plots less than 0.5 plant per square foot.	Areas of non-compliance are reseeded in the fall.
	Topsoil Depth Measurements	Annually[2]	>2 inches below installed thickness at 50% of indicators.	Evaluate topsoil on cap. If warranted, add topsoil[5] and reseed in the fall.
	Settlement Survey for Slag Pit Sump	Annually[4]	Exceeds acceptable settlement rate.	Engineering evaluation and repair of impacted cap areas.

Notes:

[1] This list of post-remedial monitoring and maintenance elements apply to evapotranspiritive caps over areas RA-B, RA-C, RA-D, RA-K, RA-F1 where elemental phosphorous may exist.

[2] Cap surface vegetation and topsoil depth monitoring will be performed annually until 5 consecutive years meet the acceptable vegetation density / topsoil depth (i.e., do not exceed triggers for maintenance) after which this monitoring will be discontinued.

[3] Settlement monitoring will be performed annually during the post-remedial period until the total cumulative movements for the previous five years are less than 0.03 foot vertically after which settlement monitoring will performed every 5 years.

[4] Repairs / maintenance will commence within 7 days except if frozen soil / snow cover / muddy conditions exist such that cap surface could be damaged in order to implement the repair/maintenance activity or are not feasible due to snow cover / frozen soil conditions (possible from November through May). If maintenance / repairs are delayed by surface conditions any repairs or maintenance will commence within 7 days of the presence of acceptable cap surface conditions. In the event maintenance or repairs must be delayed beyond commencement within 7 days for cause(s) other than frozen soil / snow cover / muddy conditions, FMC will notify EPA within 48 hours of the observation of a condition for which the maintenance/repair will be delayed.

[5] The monitoring will be performed within 7 days of the triggering storm or seismic event except if not feasible due to inaccessibility to the site or snow cover (possible from November through May). If the monitoring is delayed, the monitoring will be performed within 7 days of the ability to access 1) the site (erosion monitoring) and 2) the settlement monument and depth indicators.

[b]Phosphine gas monitoring will be performed direct soil gas sampling within the capillary break layer of the ET Cap.

[7]Soil chemistry monitoring will be a contingent action and will only be perfromed if PH3 is detected at or above 0.05 ppm PH3 in the confirmed soil gas monitoring.

TABLE 3.3

OPERATION, MONITORING AND MAINTENANCE PLAN SUMMARY
FOR GAMMA CAPS
FMC Corporation - Pocatello, Idaho

Post-Remedial Monitoring Element[1]	Measurement/Inspection	Activity Frequency	Action Trigger/Unacceptable Condition	Response Action
Routine Inspections	Signs of Stormwater Erosion/Damage	Semiannually	Signs of excessive run-on/runoff cap erosion or other damage, or sediment buildup.	Maintenance action as soon as practicable[3].
	Stormwater Diversion Controls	Semiannually	Damage to or buildup within diversion control infrastructure.	Maintenance action as soon as practicable[3].
	Rodent/Insect Damage	Semiannually	Excessive rodent or insect activity causing damage to the cap.	Maintenance action as soon as practicable[3].
25-Year, 24-Hour Storm, Seismic Event Inspections	Signs of Stormwater Erosion/Damage	Within 7 Days[4]	Signs of excessive run-on/run-off cap erosion or other damage, or sediment buildup.	Maintenance action as soon as practicable[3].
	Stormwater Diversion Controls	Within 7 Days[4]	Damage to or buildup within diversion control infrastructure.	Maintenance action as soon as practicable[3].
Routine Measurements	Cap Surface Gamma Radiation	Every 5 Years	TBD[5]	TBD[5]

Notes:

[1] This list of post-remedial monitoring and maintenance elements apply to Gamma caps over areas RA-A, RA-A1, RA-F, RA-G that do not contain elemental phosphorous.

[2] Cap surface vegetation and topsoil depth monitoring will be performed annually until 5 consecutive years meet the acceptable vegetation density / topsoil depth (i.e., do not exceed triggers for maintenance) after which this monitoring will be discontinued.

[3] Repairs / maintenance will commence within 7 days except if frozen soil / snow cover / muddy conditions exist such that cap surface could be damaged in order to implement the repair/maintenance activity or are not feasible due to snow cover / frozen soil conditions (possible between November through May). If maintenance / repairs are delayed by surface conditions any repairs or maintenance will commence within 7 days of the presence of acceptable cap surface conditions. In the event maintenance or repairs must be delayed beyond commencement within 7 days for cause(s) other than frozen soil / snow cover / muddy conditions,FMC will notify EPA within 48 hours of the observation of a condition for which the maintenance/repair will be delayed.

[4] The monitoring will be performed within 7 days of the triggering storm or seismic event except if not feasible due to inaccessibility to the site or snow cover(possible between November through May). If the monitoring is delayed, the monitoring will be performed within 7 days of the ability to access the site.

[5] This monitoring, frequency, and response actions will be developed after completion of the test gamma cap investigation to be completed in March-April 2015.

TABLE 3.4

OPERATION, MONITORING AND MAINTENANCE PLAN SUMMARY
FOR SITE-WIDE STORMWATER RUNOFF MANAGEMENT
FMC Corporation - Pocatello, Idaho

Objective: The objectives of the site-wide stormwater management and grading plans are to 1) establish the elevation contours for the subgrade to receive the ET and gamma caps, 2) design a site-wide stormwater capture, conveyance and detention system that minimizes erosion and diverts water from the planned ET and gamma covers and existing capped areas, and 3) integrate the stormwater management system and grading plans with the existing and planned caps, access roads, infrastructure and monitoring systems.

Post-Remedial Monitoring Element[1]	Measurement/Inspection	Activity Frequency	Action Trigger/Unacceptable Condition	Response Action
Routine Inspections	Signs of Stormwater Erosion	Semiannually	Signs of excessive run-on/runoff or other damage, or sediment buildup.	Maintenance action as soon as practicable[2].
	Stormwater Diversion Controls	Semiannually	Damage to or buildup within diversion control infrastructure.	Maintenance action as soon as practicable[2].
	Stormwater Detention Ponds	Semiannually	Visual identification of areas of ponding or potential surface water impoundment.	Maintenance action as soon as practicable[2].
25-Year, 24-Hour Storm Event Inspections	Signs of Stormwater Erosion	Within 7 Days[3]	Signs of excessive run-on/runoff or other damage, or sediment buildup.	Maintenance action as soon as practicable[2].
	Stormwater Diversion Controls	Within 7 Days[3]	Damage to or buildup within diversion control infrastructure.	Maintenance action as soon as practicable[2].
	Stormwater Detention Ponds	Within 7 Days[3]	Visual identification of areas of ponding or potential surface water impoundment.	Maintenance action as soon as practicable[2].

Notes:

[1] This list of post-remedial monitoring and maintenance elements apply to site-wide stormwater runoff management infrastructure

[2] Repairs / maintenance will commence within 7 days except if frozen soil / snow cover / muddy conditions exist such that cap surface could be damaged in order to implement the repair/maintenance activity or are not feasible due to snow cover / frozen soil conditions (possible from November through May). If maintenance / repairs are delayed by surface conditions any repairs or maintenance will commence within 7 days of the presence of acceptable cap surface conditions. In the event maintenance or repairs must be delayed beyond commencement within 7 days for cause(s) other than frozen soil / snow cover / muddy conditions, FMC will notify EPA within 48 hours of the observation of a condition for which the maintenance/repair will be delayed.

[3] The monitoring will be performed within 7 days of the triggering storm or seismic event except if not feasible due to inaccessibility to the site or snow cover(possible from November through May). If the monitoring is delayed, the monitoring will be performed within 7 days of the ability to access 1) the site (erosion monitoring) and 2) the monuments / indicators (settlement and soil creep monitoring).

TABLE 3.5

OPERATION, MONITORING AND MAINTENANCE PLAN SUMMARY
FOR SITE SECURITY SYSTEMS
FMC Corporation - Pocatello, Idaho

Objective: The objective of the site security system monitoring is to ensure that site security systems are in place, functional, and maintained. Site security systems for the FMC Plant Site include fencing, secured gates, and warning signs. .

Post-Remedial Monitoring Element[1]	Measurement/Inspection	Activity Frequency	Action Trigger/Unacceptable Condition	Response Action
Routine Inspections	Site-wide fences	Semiannually	Fence damage, conditions which allow for unauthorized entry, and/or evidence of tampering.	Maintenance action as soon as practicable[2].
	Site-wide gates	Semiannually	Gate opened, unlocked, damaged, conditions which allow for unauthorized entry, and/or evidence of tampering.	Maintenance action as soon as practicable[2].
	Site-wide signage	Semiannually	Signs missing, damaged, or un-readable.	Maintenance action as soon as practicable[2].

Notes:

[1] This list of post-remedial monitoring and maintenance elements apply to site security systems and infrastructure

[2] Repairs / maintenance will commence within 7 days except if weather conditions exist which prevent access to the area needing repairs. If maintenance / repairs are delayed by weather conditions, repairs or maintenance will commence within 7 days of acceptable conditions. In the event maintenance or repairs must be delayed beyond commencement within 7 days other than weather conditions, FMC will notify EPA within 48 hours of the observation of a condition for which the maintenance/repair will be delayed (e.g., waiting for replacement parts or service).

4.0 RECORD KEEPING AND REPORTING

4.1 GENERAL

Documentation of OM&M activities will be completed and retained pursuant to the requirements of the UAO. The final *OM&M Plan* will include a Monitoring and Maintenance Activity form.

4.2 REPORTING

The final *OM&M Plan* will include an annual summary report of the monitoring and maintenance activities performed pursuant to the final Plan. The annual report summarizing the prior year's activities will be transmitted to the EPA by April 15th annually.

5.0 REFERENCES

Bechtel, 1996. Remedial Investigation Report for the Eastern Michaud Flat Site. Bechtel Environmental, Inc. (BEI), Draft issued September 1995 and revised August 1996.

EPA, 2012. Interim Amendment to the Record of Decision for the EMF Superfund Site - FMC Operable Unit - Pocatello, Idaho (IRODA), September 27, 2012.

EPA, 2013. Unilateral Administrative Order for Remedial Design and Remedial Action, EPA Docket No. CERCLA-10-2013-0116 (UAO for RDRA), June 10, 2013.

MWH, 2009a. Supplemental Remedial Investigation Report for the FMC Plant Operable Unit, May 2009.

MWH, 2009b. Supplemental Remedial Investigation Addendum Report for the FMC Plant Operable Unit, Final – November 2009.

MWH, 2010a. Site-Wide Gas Assessment Report for the FMC Plant Operable Unit, December 2010.

MWH, 2013a. Remedial Design Work Plan, MWH Americas, Inc., August 2013.

Appendix A

Quality Assurance Project Plan (QAPP)

FMC Idaho LLC, Pocatello, Idaho

FMC OU REMEDIAL DESIGN
DRAFT OM&M PLAN
APPENDIX A
DRAFT QUALITY ASSURANCE PROJECT PLAN (QAPP)

January 2015

MWH

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(tables follow final section text)

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1.0 PROJECT MANAGEMENT

This *Draft Quality Assurance Project Plan* (QAPP) describes the quality assurance and quality control (QA/QC) requirements for monitoring, sampling and measurement activities performed pursuant to the *Draft Final FMC Plant OU Operation, Monitoring and Maintenance Plan* (OM&M Plan). This QAPP was prepared in accordance with the following the guidance:

- *QA Project Plans in EPA SW-846* (EPA, 1997);
- *Guidance for the Data Quality Objectives (DQO) Process* (EPA, 2000a),
- *Data Quality Objectives for Hazardous Waste Site Investigations EPA QA/G4HW* (EPA, 2000b);
- *EPA Requirements for Quality Assurance Project Plans* (EPA, 2001);
- *Guidance for Monitoring at Hazardous Waste Sites: Framework for Monitoring Plan Development and Implementation* (EPA, January 2004);

The requirements of this QAPP will be implemented using the *FMC Plant OU Field Sampling Plan* (FSP) as included in Appendix B of the OM&M Plan. The FSP provides the detailed field procedures for monitoring, sampling and analyses.

1.1 PROJECT ORGANIZATION

The project organization is shown in Figure 1.

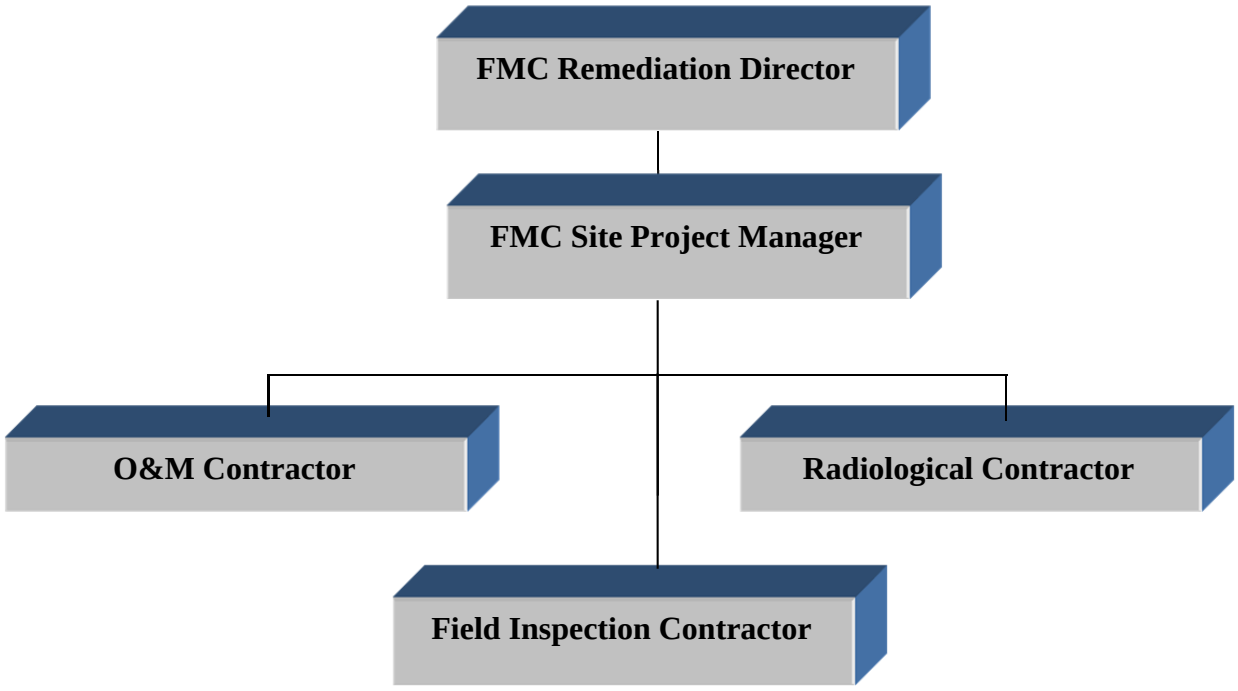

Figure 1. CERCLA OM&M Project Organization

The responsibilities of key project positions are as follows:

- FMC Remediation Project Director - overall project responsibility.
- FMC Site Project Manager - responsible for managing specific field activities (e.g. cap monitoring, stormwater monitoring, security system monitoring) including direct management of field supervisors and contractors. Also responsible for assembly, organization and maintenance of all information collected during monitoring activities.
- Field Inspection, O&M, and Radiological Contractors - responsible for the representativeness of inspections and measurements of field data relevant to monitoring and data management. The field inspection contractor is responsible for performing visual inspections, monitoring system data collection and reporting to FMC and specific maintenance items. The O&M contractor is responsible for maintenance as indicated based on field inspections and as directed by FMC. The Radiological contractor is responsible for performing the gamma cap gamma radiation monitoring (to be determined).

All personnel are responsible for identifying problems that may arise in the collection and reporting of project data and overseeing the implementation of the necessary corrective actions. The FMC Site Project Manager will track, review, and verify the effectiveness of corrective actions.

1.2 BACKGROUND

The FMC Pocatello Plant site is located in southeastern Idaho, approximately 2.5 miles northwest of Pocatello, Idaho. The FMC Pocatello Plant was a RCRA treatment, storage, and disposal facility (EPA Identification Number IDD 070929518). The FMC Pocatello Plant was in continuous operation from 1949 through 2001. The facility ceased producing elemental phosphorus from phosphate ore in December 2001. Process decommissioning and plant site dismantling activities were completed in 2006. RCRA groundwater monitoring has been conducted at the facility since 1990, when the plant became subject to RCRA Subtitle C regulatory requirements (as result of the narrowing of the Bevill exemption) and associated groundwater monitoring standards.

The FMC Plant Site is also a part of the Eastern Michaud Flats (EMF) Superfund Site. The EMF Site was listed on the National Priorities List (NPL) on August 30, 1990. The FMC Plant Site is part of the FMC Plant Operable Unit (OU), an OU within the EMF Site. The EMF site also includes an adjacent production facility (an operating phosphate fertilizer processing plant) owned and operated by the J.R. Simplot Company. The FMC Plant OU consists of all the property that FMC owns within the EMF Site, including the FMC Plant Site and all property that FMC owns north of that Highway 30 (with exception of the Tesco property). FMC, Simplot and EPA entered into a CERCLA Administrative Order on Consent (AOC) in May 1991 under which the companies agreed to conduct a Remedial Investigation/Feasibility Study (RI/FS) for the site.

FMC ceased production of elemental phosphorus from phosphate ore at its Pocatello facility in December 2001. This led EPA and FMC to enter into an AOC in October 2003 (SRI/SFS AOC) for a Supplemental Remedial Investigation and Feasibility Study (SRI/SFS) at the FMC Plant Operable Unit (OU). This was driven primarily by EPA's finding that additional investigations and evaluations were needed at the plant areas that had been actively operated at the time of the RI/FS but where operations had terminated with the plant shutdown. After the SRI/SFS was completed, EPA issued an Interim Record of Decision Amendment (IRODA) specifying the FMC Plant OU remedial action requirements. The RCRA Ponds, being subject to RCRA, are not part of the implemented IRODA.

This scope of this QAPP and the associated FSP covers the following monitoring, sampling, and analysis activities specified in the OM&M Plan:

- Monitoring for evapotranspirative (ET) caps in non-P4 areas:
    - Routine visual inspections of topsoil depth indicators;
    - Routine visual inspections of cap surface for signs of run-on/run-off cap erosion, damage, ponding, or sedimentation;
    - Routine visual inspections of cap stormwater conveyance or diversion systems for signs of erosion, debris, or sedimentation;
    - Routine visual inspection of cap surface for rodent/insect damage to cap topsoil or vegetation;
    - Storm or seismic event inspections of cap surface and conveyance/diversion systems for signs of erosion, damage, ponding, debris buildup, or sedimentation;
    - Routine measurements of cap surface vegetation; and
    - Routine measurements of cap topsoil depth.
- Monitoring for evapotranspirative (ET) caps in P4 areas:
    - Routine visual inspections of topsoil depth indicators;
    - Routine visual inspections of settlement monument at slag pit sump;
    - Routine visual inspections of cap surface for signs of run-on/run-off cap erosion, damage, ponding, or sedimentation;
    - Routine visual inspections of cap stormwater conveyance or diversion systems for signs of erosion, debris, or sedimentation;
    - Routine visual inspection of cap surface for rodent/insect damage to cap topsoil or vegetation;
    - Storm or seismic event inspections of cap surface and conveyance/diversion systems for signs of erosion, damage, ponding, debris buildup, or sedimentation;
    - Seismic event inspection of cap surface for settlement;
    - Routine measurements of capillary break layer phosphine gas (PH3);
    - Triggered measurements of cap surface, ambient air, and low-lying areas for PH3;

  - Triggered measurements of cap topsoil for soil chemistry (pH) and soil properties (density);
  - Routine measurements of cap surface vegetation;
  - Routine measurements of cap topsoil depth; and
  - Routine measurement of slag pit sump settlement.
- Monitoring for gamma caps:
  - Routine visual inspections of cap surface for signs of run-on/run-off cap erosion, damage, ponding, or sedimentation;
  - Routine visual inspections of cap stormwater conveyance or diversion systems for signs of erosion, debris, or sedimentation;
  - Routine visual inspection of cap surface for rodent/insect damage to cap topsoil or vegetation;
  - Storm or seismic event inspections of cap surface and conveyance/diversion systems for signs of erosion, damage, ponding, debris buildup, or sedimentation; and
  - Routine measurement of gamma radiation from the gamma cap surface (to be developed after completion of the test gamma cap investigation scheduled for Spring 2015).
- Monitoring for site-wide stormwater management systems:
  - Routine visual inspections of stormwater management systems (conveyance channels, diversions ditches/berms, and retention ponds) for signs of run-on/run-off cap erosion, damage, ponding, debris, or sedimentation; and
  - Storm event inspections of stormwater management systems (conveyance channels, diversions ditches/berms, and retention ponds) for signs of erosion, damage, ponding, debris buildup, or sedimentation.
- Monitoring for site security systems:
  - Routine inspection of site-wide security infrastructure including fences, gates, and signage; and
  - Review of security breaches to evaluate the need for security system improvements.

This document is organized as follows:

- Section 1 - Project Management addresses project management, including the project history, roles and responsibilities of the participants, overall project monitoring objectives and associated data quality objectives (DQOs).
- Section 2 - Data Generation and Acquisition addresses all aspects of project design and implementation, which ensures that appropriate methods for sampling, measurement and analysis, data collection or generation, data handling and quality control (QC) activities are employed and properly documented.

- Section 3 - Assessments and Oversight addresses the requirements for assessing the effectiveness of the QC measures described in this QAPP.
- Section 4 - Data Validation and Usability provides requirements for data validation and assurance of data usability.

1.3 DATA QUALITY OBJECTIVES

Data quality refers to the level of reliability associated with a particular data set or data point. The data quality associated with Performance Objective compliance monitoring data is a function of the sampling plan rationale, the sample collection procedures, and the analytical methods and instrumentation used in making the measurements. The overall QA objective is to develop and implement procedures for field sampling, COC, laboratory analysis, and data reporting that will provide data that meet project DQOs and are legally defensible. Data quality objectives are qualitative and quantitative statements that specify the field and laboratory data quality necessary to support specific decisions or regulatory actions. The DQOs describe which data are needed, why the data are needed, and how the data are to be used to meet the needs of the Performance Objective compliance monitoring. DQOs also establish numeric limits for the data to allow the data user (or reviewers) to determine whether the data collected are of sufficient quality for their intended use.

The DQOs for the CERCLA monitoring are discussed below and presented below.

1. State the problem. *Concisely describe the problem to be studied. Review prior studies and existing information to gain a sufficient understanding to define the problem. Identify the planning team members, including the decision-makers. For each data gap category, the problem statement is presented. Planning team members and decision-makers are the same for each data collection activity.*

2. Identify the decision. *Identify what questions the study will attempt to resolve and what actions may result from each decision. Develop a decision statement.*

3. Identify the decision inputs. *Identify the information that needs to be obtained and the measurements that need to be taken to resolve the decision statement.*

4. Define the study boundaries. *Specify the time periods and spatial boundaries to which decisions will apply. Determine when and where data should be collected. Define the target population of interest.*

5. Develop the decision rules. *Define the statistical parameter of interest, specify the action level, and integrate the previous DQO outputs into a single statement that describes the logical basis for choosing among alternative actions. Define an "if... then..." statement.*

6. Specify tolerance limits on decision errors. *Define the decision-makers' tolerable decision error rates based on a consideration of the consequences of making an incorrect decision.*

7. Optimize the sampling design. *Evaluate information from the previous steps and generate alternative data collection designs. Choose the most resource-effective design that meets all DQOs.*

1.3.1 OVERALL CERCLA MONITORING OBJECTIVES

The Data Quality Objectives (DQOs) have been developed for the CERCLA monitoring as presented in the OM&M Plan. The Remedial Action Objectives (RAOs) for contaminated media at the FMC OU within the scope of this QAPP include the following elements:

1. Prevent human exposure via all potential pathways (external gamma radiation exposure, inhalation of radon in potential future buildings, incidental soil ingestion, dermal absorption, and thereby resulting in an unacceptable risk to human health assuming current or reasonably fugitive dust inhalation) to soils and solids contaminated with COCs anticipated future land use.

2. Minimize generation of and prevent exposure to phosphine and other gases that represent an unacceptable risk to human health and the environment.

3. Prevent direct exposure to elemental phosphorus under conditions that may cause it to spontaneously combust, posing a fire hazard as well as resultant air emissions that represent a significant threat to human health or the environment, and prevent such conditions.

4. Reduce the release and migration of COCs to the groundwater from FMC OU sources resulting in concentrations in groundwater exceeding risk-based concentrations (RBCs) or applicable or relevant and appropriate requirements (ARARs), or site-specific background if RBCs or ARARs are more stringent than background.

The following presents a discussion on the CERCLA monitoring objectives upon which the DQOs are based.

1.3.1.1 Maintaining the Integrity and Effectiveness of the ET Caps in Non-P4 RAs

The objectives of the ET caps are to: 1) prevent exposure via all viable pathways (external gamma radiation, incidental soil ingestion, dermal absorption, and fugitive dust inhalation) to soils and solids contaminated with COCs that would result in an unacceptable risk to human health under current or reasonably anticipated future land use; 2) reduce the release and migration of COCs to the groundwater from facility sources that may result in concentrations in groundwater exceeding RBCs or chemical-specific ARARs, specifically Maximum Contaminant Levels (MCLs), or reduce to site-specific background concentrations if those are higher, and 3) for the RAs with known or suspected P4 in the subsurface, prevent the direct exposure to elemental phosphorus under conditions that may spontaneously combust, posing a fire hazard or resultant air emissions that represent a significant risk to human health and the environment, and minimize generation and prevent exposure to phosphine and other gases at levels that represent a significant risk to human health and the environment.

Remedial Areas (RAs) that have ET caps but do not contain P4 include RA-D, RA-E, and RA-H. The stated performance standard for ET caps in theses RAs is the successful implementation of the final design, which will be evaluated by the following CERCLA monitoring elements:

- Routine annual or semi-annual inspection of cap topsoil depth indicators; signs of stormwater erosion/damage, signs of rodent and/or insect damage, and stormwater diversion controls.
- Contingent monitoring for erosion/damage to the cap or stormwater diversion controls to be implemented within seven days after a 25-year storm, 24-hour storm or a seismic event.
- Routine measurements consisting of annual review of topsoil depth using depth indicators and an annual vegetation survey.

The DQOs associated with maintaining the integrity and effectiveness of the ET caps within non-P4 RAs are presented in Table 1.1.

1.3.1.2 Maintaining the Integrity and Effectiveness of the ET Caps in P4 RAs

RAs that have ET caps and are known or suspected of containing P4 include RA-B, RA-C, RA-F1, RA-F2, and RA-K. The CERCLA monitoring elements for maintaining the integrity and effectiveness of these ET caps are the same as for ET caps in non-P4 RAs with the addition of the following elements:

- Monitoring one settlement monument that will be re-established for the Slag Pit Sump at the same planar coordinates and at the elevation of the ground surface level of the ET cap at that location within RA-B; and
- Monitoring for phosphine gas within the capillary break layer (and above the surface of the cap, if triggered) and soil chemistry changes due to potential decomposition of phosphine within the soil (if triggered).

The DQOs associated with maintaining the integrity and effectiveness of the ET caps within P4 RAs are presented in Table 1.2.

1.3.1.3 Maintaining the Integrity and Effectiveness of Gamma Caps

The objective of the gamma caps is to prevent exposure via all viable pathways (external gamma radiation, incidental soil ingestion, dermal absorption, and fugitive dust inhalation) to soils and solids contaminated with COCs that would result in an unacceptable risk to human health under current and reasonably anticipated future land use. The RAs which have gamma caps include RA-A, RA-F, and RA-G.

The stated performance standard for gamma caps is the successful implementation of the final design, which will be based on the Gamma Cap Performance Evaluation described in Section 3.2.2 of the *Remedial Design Work Plan* (MWH, 2013). The CERCLA monitoring elements for maintaining the integrity and effectiveness of gamma caps are:

- Routine annual or semi-annual inspection for signs of erosion, rodent and insect damage, and/or stormwater conveyance/diversion controls.
- Contingent monitoring for erosion/damage to the cap or stormwater diversion controls to be implemented within seven days after a 25-year storm, 24-hour storm or a seismic event.
- Routine measurements consisting of gamma emission surveys/measurements to evaluate achievement of the radium-226 soil cleanup level. Pursuant to EPA's January 29, 2014 comments on the Gamma Cap Performance Evaluation Report, FMC and EPA will further discuss an additional study to develop a method and procedure for measuring gamma emissions above the gamma cap for performance standard verification. Frequency, action triggers and response actions will be based on the gamma emission survey method and will be developed/detailed after completion of the test gamma cap data gap investigation to be performed in the spring of 2015.

The DQOs associated with maintaining the integrity and effectiveness of the gamma caps are presented in Table 1.3.

1.3.1.4 Maintaining the Integrity and Effectiveness of Site-Wide Stormwater Management System

The objectives of the site-wide stormwater management infrastructure are to: 1) implement a site-wide stormwater capture, conveyance and detention system that minimizes erosion and diverts water from the planned ET and gamma covers and existing capped areas, and 2) integrate the stormwater management system and grading plans with the existing and planned caps, access roads, infrastructure and monitoring systems.

The stated performance standard for site-wide stormwater runoff is that the site-wide stormwater management system infrastructure is to establish the stormwater management controls such that the ET and gamma caps meet their respective performance standards, and maintain the zero stormwater discharge status of the FMC plant site. The CERCLA monitoring elements for site-wide stormwater runoff controls are:

- Routine semi-annual inspection of stormwater runoff management infrastructure including diversion controls and detention ponds.
- Contingent monitoring for erosion/damage to stormwater runoff management infrastructure to be implemented within seven days after a 25-year storm, 24-hour storm or a seismic event.

The DQOs associated with maintaining the integrity and effectiveness of the site-wide stormwater management system are presented in Table 1.4.

1.3.1.5 Protection and Maintenance of the Site Security Systems

The objective of the site security system monitoring is to ensure that site security systems are in place, functional, and maintained. Site security systems for the FMC Plant Site include fencing, secured gates, and warning signs. The stated performance standard for site-wide security is that the site security systems will be installed and maintained to minimize unauthorized entry onto the FMC plant site. The CERCLA monitoring elements for the site security systems are:

- Routine semi-annual inspection of site-wide security infrastructure including fences, gates, and signage.
- Review of security breaches to evaluate the need for security system improvements.

The DQOs associated with protection and maintenance of site security systems are presented in Table 1.5.

1.4 SPECIAL TRAINING REQUIREMENTS/CERTIFICATION

All personnel directly involved in field inspections, field measurements, sample collection, handling, analysis, and data evaluation will be provided with a copy of this QAPP and the applicable FSP. Personnel will be trained in the requirements specified herein, or provided ample time to read and become familiar with the requirements prior to beginning data collection activities. Any persons entering the fenced area containing the closed RCRA ponds will be given training on the *RCRA Pond Area Work Rules* and the *RCRA Facility-Wide Contingency Plan – FMC Idaho, LLC.* Persons directly involved in sampling on the FMC Plant Site will also be required to have hazardous waste operations and emergency response training (HAZWOPER) per the requirement of 29 CFR § 1910.120.

1.5 DOCUMENTATION AND RECORDS

Records of the inspections, field measurements, analyses and evaluations required by this plan will be maintained by FMC at the site in accordance with the UAO. Laboratory documentation and records requirements are specified in the laboratory QAPP. Required field documentation is specified in the companion FSP included in Appendix B.

2.0 DATA GENERATION AND ACQUISITION

This section provides requirements for field inspections, field measurements, sampling program design, sample collection, handling, analysis, and data management. These requirements ensure that appropriate methods for sampling, analysis, data handling, and quality control are employed and documented.

2.1 SAMPLING PROCESS DESIGN

2.1.1 SURFACE VEGETATION MONITORING

The cap vegetation cover surveys will be performed annually on the surface of each of the ET caps. The purpose of the vegetation monitoring is to visually inspect the ET cap surface to determine if areas void of vegetation are developing. Therefore, the vegetation cover survey will be performed in the fall at the end of the growing season (typically in September or October and just prior to re-seeding, if required). All ET caps will be inspected following the methodology described in *Guidelines for Determining Stand Establishment on Pasture, Range and Conservation Seedings* (USDA, January 2008). The vegetation monitoring at each ET cap will consist of three walking transects and counting plants within ten (10) 9 square foot sampling plots per transect. The plant density within each of the total of thirty (30) sample plots will be used to evaluate the adequacy of the vegetative cover on the cap surface. The vegetation count accuracy will be ± 1 plant per 9 square foot plot ("sample").

2.1.2 SETTLEMENT MONITORING

Settlement monitoring will be performed only at the ET cap area over the slag pit sump. The elevation and coordinates of the single settlement monument will be surveyed to determine the vertical and horizontal components of the final cover monument. Measurements are taken on the monument annually. For accuracy, a surveying instrument will be used to take measurements with the following tolerances:

- Elevation readings: 0.01 foot
- Horizontal displacement: 0.1 foot

Elevation and displacement measurements will be plotted cumulatively versus time. The time scale will be in logarithm of time or square root of time. The settlement curve will be kept up to date with each reading. The displacement measurements (vertical and horizontal movements) will be made (1) annually; (2) if visible subsidence is noted during semiannual inspections or routine maintenance; and (3) after local seismic events. A triggering seismic event is defined as an event the (1) exceeds a magnitude 5.0 on the Richter Scale with an epicenter within a 20-mile radius as reported by USGS or (2) exceeds a magnitude 6.0 on the Richter Scale with an epicenter within a 50-mile radius as reported by USGS during the remaining post-closure period or until the total cumulative movements for the previous five years are less than the following limits:

- Vertical settlement: 0.03 foot
- Horizontal movement: 0.2 foot

Displacement measurements will be made (1) at least once every five years during the post-RA period after the above limits are reached; (2) if visible subsidence is noted during semiannual run-on and/or run-off erosion monitoring or other monitoring and/or maintenance; and (3) after local seismic events. The criteria for visible subsidence requiring settlement monitoring has been established as an area of 100 square feet (a 10 foot by 10 foot or 11 foot diameter area) or greater where precipitation ponding is observed or could occur to a depth of 1 inch of water or greater. A triggering seismic event is defined as an event the (1) exceeds a magnitude 5.0 on the Richter Scale with an epicenter within a 20-mile radius as reported by USGS or (2) exceeds a magnitude 6.0 on the Richter Scale with an epicenter within a 50-mile radius as reported by USGS. Settlement monitoring will be based on control stations "94-1" and "94-4," which are local stations in FMC's survey control system. The coordinates for these stations were derived from the *U.S. Coast & Geodetic Survey (US C&GS) Control Station MCDOUGAL-2 and BM Y-96*. The vertical datum is based on the 1968 adjustment of the *National Geodetic Vertical Datum of 1929 (NGVD 29) by the US C&GS*.

2.1.3 Topsoil Depth Monitoring

The topsoil indicators installed on each ET cap will be inspected and soil levels recorded annually. When topsoil (loss) measurement reaches 5 inches below the installed thickness at 50-percent of the indicators on a given ET cap, the total cap area will be evaluated. The topsoil depth measured against the topsoil depth indicators are ± 0.25 inch.

2.1.4 Rodent/Insect Infestation Monitoring

The ET caps and the gamma caps will be visually inspected for evidence of rodent burrowing or loss of vegetation as result of rodent/insect feeding. The rodent/insect infestation monitoring is performed semi-annually by walking around the perimeter of the cap, and then walking equidistant, parallel traverses over the cap surface of the pond. The monitoring is a visual observation of evidence of rodent burrowing or loss of vegetation has occurred. This is a qualitative, rather than quantitative assessment.

2.1.5 Cap Run-On and Run-Off Erosion Monitoring

The cap stormwater/snowmelt monitoring is performed (1) semiannually and (2) within 48 hours of a 25-year, 24-hour storm event defined as 2.1 inches (or more) of precipitation within a 24 hour period (NOAA, 1973) as reported for the Pocatello airport weather station to determine if cap surface erosion or ponding has occurred by walking around the perimeter of the cap, and then walking equidistant, parallel traverses over the cap surface of the pond. This monitoring is a visual identification of areas where topsoil erosion, lack of vegetation as result of erosion, and/or ponding of water on the cap surface is present. Diversionary / drainage structures are also inspected for accumulation of debris or sediment. This is a qualitative, rather than quantitative assessment.

2.1.6 SITE-WIDE STORMWATER MANAGEMENT SYSTEM MONITORING

The site-wide stormwater/snowmelt monitoring is performed (1) semiannually and (2) within 48 hours of a 25-year, 24-hour storm event defined as 2.1 inches (or more) of precipitation within a 24 hour period (NOAA, 1973) as reported for the Pocatello airport weather station to determine if surface erosion or ponding has occurred by walking or driving along stormwater management conveyance channels, diversionary structures, and retention ponds. This monitoring is a visual identification of areas where topsoil erosion, lack of vegetation as result of erosion, ponding of water, sediment buildup, debris accumulation or other damage caused by stormwater/snowmelt. This is a qualitative, rather than quantitative assessment.

2.1.7 SITE SECURITY MONITORING

The FMC Plant Site security monitoring is performed semiannually by visually inspecting all fences, gates, and warning signs associated with the FMC Plant Site security system. This is a qualitative, rather than quantitative assessment.

2.2 SAMPLING METHODS

All sampling/measurements/inspections associated with cap monitoring, site-wide stormwater management system monitoring, and/or site security monitoring will be performed in accordance with the detailed procedures in the *FSP* as included in Appendix B of the OM&M PLan.

2.3 SAMPLE HANDLING AND CUSTODY

Sample handling and custody only applies to samples being submitted to an off-site analytical laboratory, e.g., soil pH or waste determination samples. All other sampling and data collection covered by the QAPP is performed using field instrumentation or direct observation. Waste determination samples, when applicable, will be handled and custody will be maintained in accordance with standard practices necessary to comply with 40 CFR § 262.11.

2.4 ANALYTICAL METHODS

Sample analytical methods only apply to samples being submitted to an off-site analytical laboratory, e.g., topsoil pH and waste determination samples. All other sampling and data collection covered by the QAPP is performed using field instrumentation or direct observation. Topsoil pH analysis will be performed using EPA Method 9045D. Waste determination samples will be analyzed in accordance with established analytical methods necessary to comply with 40 CFR § 262.11.

2.5 QUALITY CONTROL

Quality control samples are not expected to be required for the sampling within the scope of this QAPP. If the scope of the CERCLA monitoring changes such that additional laboratory analysis is required, quality control sampling will be added to this QAPP as appropriate.

2.6 INSTRUMENT AND EQUIPMENT TESTING, INSPECTION, & MAINTENANCE REQUIREMENTS

All field equipment used in the conduct of this work will receive routine maintenance checks in order to minimize equipment breakdowns. Laboratory equipment is tested, inspected, and maintained in accordance with an established Laboratory QA/QC plan.

2.6.1 ET CAP PH3 MEASUREMENT AND DATA ACQUISTION

All field PH3 monitoring on the ET caps will be performed using the Draeger Pac III hand-held gas monitor (or subsequent models) equipped with the DragerSensor® XS Hydride (0-20 ppm) sensor. This instrument has been used extensively and reliably at the FMC Plant Site for monitoring of the RCRA Ponds. The Draeger Pac III with the 0-20 ppm range sensor has a read-out that measures to two (2) decimal places, i.e., 0.00 ppm. The instrument manufacturer state that the Draeger Pac III has an accuracy of ± 5% of the measured value or less. The Draeger Pac III Instructions for Use ("Users Manual") and Draeger specifications for the DragerSensor® XS Hydride sensor are maintained at the FMC Plant Site for reference. All readings acquired under this QAPP will be recorded to the 100^{th} of a ppm (i.e., all digits shown on the meter readout) on the specified logsheet.

If the PH3 reading on the Draeger Pac III field instrument exceeds the upper range of the instrument, (20 ppm), then the sampling will be performed using the Draeger Pac III field instrument with the higher range sensor (0 to 1,000 ppm). Monitoring equipment providing comparable or better performance may be substituted for the named equipment in the future.

2.7 INSTRUMENT AND EQUIPMENT CALIBRATION AND FREQUENCY

The requirements in this section pertain to the calibration of field equipment. Laboratory equipment will be calibrated in accordance with an established QA/QC plan and all calibrations will be performed in accordance standard operating procedures consistent with the QA/QC plan. Additional requirements related to laboratory instrument calibrations and frequency requirements are specified in the laboratory QA/QC plan. All calibrations of field equipment will be recorded in the monitoring log book.

2.7.1 DRAEGER PAC III INSTRUMENT CALIBRATION

The Draeger manufacturer's specification for the DragerSensor® XS Hydride (0 tp 20 ppm) sensor states that the calibration frequency is as follows: Required = 6 months and Recommended = 3 months. However, FMC has implemented and will follow a 14-day calibration cycle that is substantially more conservative than the manufacturer's recommended calibration frequency. The manufacturer's calibration procedures are contained in the Users

Manual. The FMC Site O&M Contractor has developed and will used a calibration procedure as included in Attachment A to this QAPP.

2.8 INSPECTION AND ACCEPTANCE REQUIREMENTS FOR SUPPLIES AND CONSUMABLES

All supplies used in field sampling will be decontaminated prior to use in accordance with the equipment decontamination procedure presented in the applicable FSP.

2.9 DATA ACQUISITION REQUIREMENTS (NON-DIRECT MEASUREMENTS)

To meet cap and site monitoring objectives of this QAPP at the FMC Plant Site, no data from non-direct measurements are required.

2.10 DATA MANAGEMENT

Data from both the field and the laboratory will be managed during this project. Field data will consist of field notebooks and chain of custody forms. Notebooks and chain of custody forms will be retained by the groundwater sampling contractor until the end of each quarterly sampling event, then forwarded to the FMC Site Project Manager for retention.

The laboratory documentation required for each sample delivery group depends on the anticipated level of review. Section 2.10.1 presents the documentation requirements of data validation and Section 2.10.2 presents the documentation requirements for data review.

Field documentation is presented in Section 2.10.3.

2.10.1 LABORATORY DOCUMENTATION FOR DATA VALIDATION

The following documentation will be provided by the laboratory for each sample delivery group scheduled for validation:

1. Case Narrative
2. Chain of Custody Documentation
3. Summary of Results
4. QA/QC Result Summaries
5. Raw Data

The format and detailed content of the laboratory documents will support validation of the data in accordance with EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (EPA 1994). An electronic data deliverable will be provided by the laboratory in a file format specified by FMC that is compatible with dBase III software. Data packages for full validation will be forwarded by the laboratory to the data validation contractor. At the same time, a copy of items 1 through 4 will be forwarded to the FMC Site Project Manager for retention.

2.10.2 LABORATORY DOCUMENTATION FOR DATA REVIEW

Each sample delivery group of laboratory data not planned for validation will include items 1 through 4 described above in the same level of detail as required if the data were to be validated. Item 5, Raw Data, is not required. An electronic data deliverable will be provided by the laboratory in a file format specified by FMC. Items 1 through 4 will be forwarded to the FMC Environmental Manager for retention.

2.10.3 FIELD MEASUREMENT DOCUMENTATION

All information pertinent to the field activities will be entered directly onto the field inspection form(s). Information entered onto the field inspection form will include:

- Date, sampling event start time, weather conditions, personnel on site, and instrument calibration information.
- Descriptions of all field activities and procedures including any deviations from the FSP's.

In addition to written records, photographs also may be taken as necessary to supplement written descriptions of field activities entered on the field inspection form(s). Photographs will be included in project reports, where appropriate, and will be stored with the permanent project files.

3.0 Assessment/Oversight

Periodic surveillance of monitoring activities will be conducted. The surveillance will be conducted by the FMC Site Project Manager or his/her designee. The field surveillance will focus on adherence to standard procedures and will include field observation of sampling procedures and selected documentation. Laboratory audits will be conducted in accordance with the laboratory quality assurance plan. Field surveillance reports and laboratory audit reports will be maintained by the FMC Site Project Manager. Audit findings which require corrective action and follow-up will be documented and tracked and will have resolution verified by the FMC Site Project Manager.

3.1 ASSESSMENTS AND RESPONSE ACTIONS

If it appears that field or laboratory data are in error, the error(s) or potential error(s) will be documented and appropriate corrective action(s) will be taken. Corrective actions may include one or more of the following:

- Measurements may be repeated to check the error
- Calibrations may be checked and/or repeated
- Instrument/equipment may be replaced or repaired
- New samples may be collected, and/or samples may be reanalyzed.

All field and laboratory personnel will be responsible for identification of problems and implementation of corrective actions. During field and laboratory activities, problem descriptions and corrective actions taken will be thoroughly detailed and entered onto field inspection forms or laboratory notebooks.

If the FMC Site Project Manager, Analytical Laboratory Contractor QA officer, or other project personnel become aware of any problems in sample collection or analysis that cannot be corrected in the field or laboratory, they will initiate formal corrective action. . The FMC Site Project Manager will also be notified of problems identified and corrective actions taken during field activities. Appropriate corrective actions will be determined on a case-by-case basis.

3.2 REPORTS TO MANAGEMENT

The surveillance and audit findings will be included in the corresponding groundwater quarterly groundwater monitoring results and data validation reports. Each report, as appropriate, will include a section which provides an overall assessment of the performance of the field and laboratory programs based on the audits.

4.0 Data Validation and Usability

The following subsection presents requirements for activities that occur after the data collection phase of the project is complete.

4.1 DATA REVIEW, VALIDATION, AND VERIFICATION REQUIREMENTS

If laboratory generated analytical data is required (other than soil pH or waste management determinations), ten percent of the analytical results or one sample delivery group, whichever is greater, will be validated. The other ninety percent will receive a QC and Blank Check to ensure the sampling and analytical program are operating within control limits. The QC and Blank Check will include examination of field duplicate sample results and laboratory QA/QC sample results. All electronic copy entries will be verified against hard-copy results reported by the laboratory and field sampling personnel, unless the electronic copy is produced using the same laboratory information management system.

The FMC Site Project Manager or designee will assess the usability of the data generated pursuant to the CERCLA OM&M Plan as follows:

- Review the validated laboratory analytical data and quantitative field data (e.g., depth to water and field parameter measurements during groundwater monitoring) in terms of the DQOs as described in Tables 1.1 through 1.5 and consistency with prior results and any trends.
- Review the non-quantitative field data qualitatively in terms of the DQOs as described in Tables 1.1 through 1.5.

4.2 VALIDATION AND VERIFICATION METHODS

The required data review may be conducted informally during report preparation; it should include a comparison of the current and previous quarter results. The QC and Blank Check will be conducted by compiling the results of field duplicate samples and laboratory QA/QC samples and assessing whether the sampling and analytical processes are operating within control limits. Generally, these processes are considered within control limits if the relative percent difference between field duplicate pairs is less than 30 percent and if the laboratory QA/QC sample results meet the criteria specified in the applicable method. Data validation will be conducted in accordance with the EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (EPA, 1994), Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, Final (EPA, July 2002), and Guidance on Environmental Data Verification and Data Validation (EPA, November 2002).

4.3 RECONCILIATION WITH USER REQUIREMENTS

To meet the project objectives specified in Section 1.3.2, the data analyses specified in DQO Step 5 of this QAPP will be performed. If sufficient data of known quality have been generated to complete these analyses, then the project objectives have been met. If insufficient data of known quality have been generated (i.e., significant rejected results) to complete these analyses, then the project objectives have not been met and corrective action will be required to complete the analyses. Appropriate corrective actions will be determined on a case-by-case basis but may include re-measurement or re-sampling / laboratory analysis.

5.0 References

EPA, 1983. “Methods for Chemical Analysis of Water and Wastes,” EPA 600/4-79-020, revision March 1983.

EPA, 1994. “EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review”, February 1994.

EPA, 1995. "Proposed RCRA Ground-Water Monitoring Reductions for the FMC Pocatello Facility, EPA ID# IDD 07092 9518", June 1995.

EPA, 1997. “Test Methods for Evaluating Solid Waste,” EPA SW-846, 3rd edition, May 1997.

EPA, 2000. “Guidance for the Data Quality Process, EPA QA/G-4, EPA/600/R-96/055, August 2000.

EPA, 2001. “EPA Requirements for Quality Assurance Project Plans, EPA QA/R-5, EPA/240/B-01/003, March 2001.

EPA, 2001. “Requirements for Quality Assurance Project Plans for Environmental Data Operations,” EPA QA/R-5, March 2001.

EPA, July 2002. “Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, Final”, EPA 540-R-01-008, July 2002.

EPA, November 2002. “Guidance on Environmental Data Verification and Data Validation” EPA QA/G-8, November 2002.

EPA, January 2004. “Guidance for Monitoring at Hazardous Waste Sites: Framework for Monitoring Plan Development and Implementation,” OSWER Directive No. 9355.4-28, January 2004.

EPA, March 2009. “Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities Unified Guidance” EPA 530-R-09-007, Office of Resource Conservation and Recovery, Program Implementation and Information Division, March 2009.

Table 1.1
CERCLA OM&M PLAN DATA QUALITY OBJECTIVES (DQOs)
CERCLA Monitoring for ET Caps on Non-P4 RAs
(RA-D, RA-E, and RA-H)

DQO Step	Vegetation Monitoring	Stormwater Erosion/Damage Monitoring	Topsoil Depth Monitoring	Rodent/Insect Monitoring
State the Problem				
Problem Statement	In order to maintain ET cap performance, vegetation on the cap surface will be monitored and maintained.	In order to maintain cap performance, monitor impacts of stormwater runon/runoff on the ET cap surface or diversion controls, i.e., erosion, ponding, sedimentation, debris accumulation or other damage associated with stormwater.	In order to maintain ET cap performance, topsoil erosion losses (from wind and/or stormwater runoff) will be monitored. Topsoil depth indicators will be inspected and maintained.	In order to maintain cap performance, impacts of rodents and/or insects will be monitored on the ET cap surface, i.e., burrowing or loss of vegetation.
Relevant Deadlines	Vegetation monitoring on the cap surface will be conducted annually, as specified in the OM&M Plan.	Semi-annually inspect the ET cap surface and diversion controls for stormwater/snowmelt runon/runoff damage. This will be performed after the spring snowmelt (in April or May) which usually produces peak runoff for the year and in the fall (September or October) after the peak thunderstorm season is over. Within seven (7) days of a 25-year, 24-hour storm event, perform similar inspection of the cap surface and diversion controls for stormwater runon/runoff damage.	Topsoil depth monitoring on the ET cap will be conducted annually (provided soil depth gauges are accessible), as specified in the OM&M Plan.	ET cap surface will be monitored for evidence of rodent and/or insect activity (including dirt mounds, distressed vegetation, etc.) semi-annually, ground surface conditions permitting.
Identify the Decision				
Principal Study Question	Is the vegetation cover on the cap surface adequate (given climatic conditions in Southeast Idaho) such that the ET cap is capable of performing as designed and/or that surface topsoil erosion will be minimized?	Is stormwater runon/runoff controlled such that the cap integrity/performance is not jeopardized?	Is loss of topsoil (through wind or runoff erosion) on the ET cap surface is less than or equal to design as an indicator that the ET cap is capable of performing as designed.	Is rodent/insect activity is controlled such that the ET cap integrity/performance is not jeopardized.
Alternative Actions	Evaluation of surface vegetation will be used to demonstrate that cap evapotranspiration rates are acceptable and that erosion potential is minimized.	Monitoring of the cap topsoil surface for evidence of excessive stormwater erosion, ponding, sedimentation, or other damage will be used to identify and correct excessive stormwater runon/runoff damage.	Evaluation of topsoil loss on the ET cap surface will be used to demonstrate that the evapotranspiration storage of the ET cap is adequate.	Monitoring of the ET cap topsoil surface for evidence of excessive rodent/insect activity will be used to identify and correct excessive rodent/insect activity.
Identify the Decision Inputs				
Physical Inputs	Survey of vegetation density on the cap surface consisting of 3 transects and 10 plots (“samples”) per transect.	Visual check for any signs of excessive stormwater erosion, ponding, sedimentation, or other damage.	Vertical depth measurement of topsoil at each topsoil depth indicator.	Visual check for any signs of excessive rodent or insect activity.
Chemical Inputs	None.	None.	None.	None.
Action Levels	Sixty seven percent (67%) of the total 30 samples meet or exceed the target density of 0.5 plants per square foot on the cap surface.	Any excessive erosion channels or rills in the cap surface, any evidence of ponding or sediment buildup on the cap surface of an area greater than 100 ft^2.	When measured topsoil loss exceeds 5 inches at 50% of the topsoil indicators on a given ET cap, the total cap area will be evaluated.	Any unusual or excessive burrowing or soil mounding. Any rodent/insect impacts on vegetation resulting in unacceptable coverage per vegetation monitoring criteria.
Define the Study Boundaries				
Temporal Boundary	Vegetation monitoring on the ET cap surface will be conducted annually throughout the post-RA period.	ET cap surface will be monitored for evidence of stormwater damage semi-annually and after a 25-yr/24-hr storm event, ground surface conditions permitting, throughout the post-RA period.	Topsoil depth monitoring on the cap will be conducted annually throughout the post-remedial action period.	ET cap surface will be monitored for evidence of rodent and/or insect activity semi-annually, ground surface conditions permitting, throughout the post-RA period.
Horizontal Boundary	The geographical boundaries of the ET cap surface.	The geographical boundaries of the ET cap surface.	The geographical boundaries of the cap surface.	The geographical boundaries of the ET cap surface.
Vertical Boundary	The cap surface.	The ET cap surface.	The ET cap surface.	The ET cap surface.

Table 1.1
CERCLA OM&M PLAN DATA QUALITY OBJECTIVES (DQOs)
CERCLA Monitoring for ET Caps on Non-P4 RAs
(RA-D, RA-E, and RA-H)

DQO Step	Vegetation Monitoring	Stormwater Erosion/Damage Monitoring	Topsoil Depth Monitoring	Rodent/Insect Monitoring
Develop the Decision Rule				
Parameter of Interest	Vegetation density on the ET cap surface.	Not applicable.	Depth of topsoil at the topsoil depth indicators.	Not applicable.
Decision Rule	Decision Rule: If less than sixty seven percent (67%) of the total 30 samples meet or exceed the minimum target density of 0.5 plants per square foot on the cap surface, take corrective action (i.e., reseeding) in the fall (typically October).	Decision Rule: If there is any evidence of excessive erosion, ponding, sedimentation or damage caused by stormwater runon/runoff that could negatively impact cap function, take corrective action as soon as practicable.	Decision Rule a: If the total measured topsoil loss exceeds 5 inches at 50% of the topsoil indicators on a given ET cap, the total cap area will be evaluated. Proceed to Decision Rule b. Decision Rule b: If the topsoil depth indicator is damaged, take corrective maintenance action as soon as practicable.	Decision Rule: If there is any evidence of excessive or unusual rodent or insect activity that could negatively impact cap function, take corrective action as soon as practicable.
Specify Tolerance Limits on Decision Errors				
Tolerance Limits	Plant count within each plot = $\pm$ 1 plant	Not applicable.	Depth measurements = ±0.25 inches	Not applicable.
Optimize the Design for Obtaining Data				
Sample Design	The data collection design is described in the *Field Sampling Plan* (Appendix B of the OM&M Plan).	The data collection design is described in the *Field Sampling Plan* (Appendix B of the OM&M Plan).	The data collection design is described in the *Field Sampling Plan* (Appendix B of the OM&M Plan).	The data collection design is described in the *Field Sampling Plan* (Appendix B of the OM&M Plan).

Table 1.2
CERCLA OM&M PLAN DATA QUALITY OBJECTIVES (DQOs)
CERCLA Monitoring for ET Caps on P4 RAs
(RA-B, RA-C, RA-F1, RA-F2, and RA-K)

DQO Step	Vegetation Monitoring	Stormwater Erosion/Damage Monitoring	Topsoil Depth Monitoring	Rodent/Insect Monitoring
State the Problem				
Problem Statement	In order to maintain ET cap performance, vegetation on the cap surface will be monitored and maintained.	In order to maintain cap performance, monitor impacts of stormwater runon/runoff on the ET cap surface or diversion controls, i.e., erosion, ponding, sedimentation, debris accumulation or other damage associated with stormwater.	In order to maintain ET cap performance, topsoil erosion losses (from wind and/or stormwater runoff) will be monitored. Topsoil depth indicators will be inspected and maintained.	In order to maintain cap performance, impacts of rodents and/or insects will be monitored on the ET cap surface, i.e., burrowing or loss of vegetation.
Relevant Deadlines	Vegetation monitoring on the cap surface will be conducted annually, as specified in the OM&M Plan.	Semi-annually inspect the ET cap surface and diversion controls for stormwater/snowmelt runon/runoff damage. This will be performed after the spring snowmelt (in April or May) which usually produces peak runoff for the year and in the fall (September or October) after the peak thunderstorm season is over. Within seven (7) days of a 25-year, 24-hour storm event, perform similar inspection of the cap surface and diversion controls for stormwater runon/runoff damage.	Topsoil depth monitoring on the ET cap will be conducted annually (provided soil depth gauges are accessible), as specified in the OM&M Plan.	ET cap surface will be monitored for evidence of rodent and/or insect activity (including dirt mounds, distressed vegetation, etc.) semi-annually, ground surface conditions permitting.
Identify the Decision				
Principal Study Question	Is the vegetation cover on the cap surface adequate (given climatic conditions in Southeast Idaho) such that the ET cap is capable of performing as designed and/or that surface topsoil erosion will be minimized?	Is stormwater runon/runoff controlled such that the cap integrity/performance is not jeopardized?	Is loss of topsoil (through wind or runoff erosion) on the ET cap surface is less than or equal to design as an indicator that the ET cap is capable of performing as designed.	Is rodent/insect activity is controlled such that the ET cap integrity/performance is not jeopardized.
Alternative Actions	Evaluation of surface vegetation will be used to demonstrate that cap evapotranspiration rates are acceptable and that erosion potential is minimized.	Monitoring of the cap topsoil surface for evidence of excessive stormwater erosion, ponding, sedimentation, or other damage will be used to identify and correct excessive stormwater runon/runoff damage.	Evaluation of topsoil loss on the ET cap surface will be used to demonstrate that the evapotranspiration storage of the ET cap is adequate.	Monitoring of the ET cap topsoil surface for evidence of excessive rodent/insect activity will be used to identify and correct excessive rodent/insect activity.
Identify the Decision Inputs				
Physical Inputs	Survey of vegetation density on the cap surface consisting of 3 transects and 10 plots (“samples”) per transect.	Visual check for any signs of excessive stormwater erosion, ponding, sedimentation, or other damage.	Vertical depth measurement of topsoil at each topsoil depth indicator.	Visual check for any signs of excessive rodent or insect activity.
Chemical Inputs	None.	None.	None.	None.
Action Levels	Sixty seven percent (67%) of the total 30 samples meet or exceed the target density of 0.5 plants per square foot on the cap surface.	Any excessive erosion channels or rills in the cap surface, any evidence of ponding or sediment buildup on the cap surface of an area greater than 100 ft^2.	When measured topsoil loss exceeds 5 inches at 50% of the topsoil indicators on a given ET cap, the total cap area will be evaluated.	Any unusual or excessive burrowing or soil mounding. Any rodent/insect impacts on vegetation resulting in unacceptable coverage per vegetation monitoring criteria.
Define the Study Boundaries				
Temporal Boundary	Vegetation monitoring on the ET cap surface will be conducted annually throughout the post-RA period.	ET cap surface will be monitored for evidence of stormwater damage semi-annually and after a 25-yr/24-hr storm event, ground surface conditions permitting, throughout the post-RA period.	Topsoil depth monitoring on the cap will be conducted annually throughout the post-remedial action period.	ET cap surface will be monitored for evidence of rodent and/or insect activity semi-annually, ground surface conditions permitting, throughout the post-RA period.
Horizontal Boundary	The geographical boundaries of the ET cap surface.	The geographical boundaries of the ET cap surface.	The geographical boundaries of the cap surface.	The geographical boundaries of the ET cap surface.
Vertical Boundary	The cap surface.	The ET cap surface.	The ET cap surface.	The ET cap surface.
Develop the Decision Rule				

Table 1.2
CERCLA OM&M PLAN DATA QUALITY OBJECTIVES (DQOs)
CERCLA Monitoring for ET Caps on P4 RAs
(RA-B, RA-C, RA-F1, RA-F2, and RA-K)

DQO Step	Vegetation Monitoring	Stormwater Erosion/Damage Monitoring	Topsoil Depth Monitoring	Rodent/Insect Monitoring
Parameter of Interest	Vegetation density on the ET cap surface.	Not applicable.	Depth of topsoil at the topsoil depth indicators.	Not applicable.
Decision Rule	Decision Rule: If less than sixty seven percent (67%) of the total 30 samples meet or exceed the minimum target density of 0.5 plants per square foot on the cap surface, take corrective action (i.e., reseeding) in the fall (typically October).	Decision Rule: If there is any evidence of excessive erosion, ponding, sedimentation or damage caused by stormwater runon/runoff that could negatively impact cap function, take corrective action as soon as practicable.	Decision Rule a: If the total measured topsoil loss exceeds 5 inches at 50% of the topsoil indicators on a given ET cap, the total cap area will be evaluated. Proceed to Decision Rule b. Decision Rule b: If the topsoil depth indicator is damaged, take corrective maintenance action as soon as practicable.	Decision Rule: If there is any evidence of excessive or unusual rodent or insect activity that could negatively impact cap function, take corrective action as soon as practicable.
Specify Tolerance Limits on Decision Errors				
Tolerance Limits	Plant count within each plot = $\pm$ 1 plant	Not applicable.	Depth measurements = ±0.25 inches	Not applicable.
Optimize the Design for Obtaining Data				
Sample Design	The data collection design is described in the *Field Sampling Plan* (Appendix B of the OM&M Plan).	The data collection design is described in the *Field Sampling Plan* (Appendix B of the OM&M Plan).	The data collection design is described in the *Field Sampling Plan* (Appendix B of the OM&M Plan).	The data collection design is described in the *Field Sampling Plan* (Appendix B of the OM&M Plan).

Table 1.2
CERCLA OM&M PLAN DATA QUALITY OBJECTIVES (DQOs)
CERCLA Monitoring for ET Caps on P4 RAs
(RA-B, RA-C, RA-F1, RA-F2, and RA-K)

DQO Step	Slag Pit Settlement Monitoring	Phosphine (PH3) Monitoring	Contingent ET Cap Topsoil Chemistry Monitoring
State the Problem			
Problem Statement	In order to monitor cap settlement and movement on the slag pit sump ET cap, settlement monument will be monitored and maintained.	In order to that PH3 emissions from the ET cap area does not pose a threat to human health or the environment, monitor PH3 at the ET cap.	In order to maintain ET cap performance, ET cap topsoil chemistry (pH) and physical properties (soil density) will be monitored if PH3 accumulation is measured in the ET cap capillary break layer. A change in topsoil pH could impact vegetation viability and a change in topsoil density could impact the cap water storage capability.
Relevant Deadlines	Displacement measurements will be made (1) annually until the defined vertical and horizontal displacement limits are reached and then at least once every five years during the post-RA period; (2) if visible subsidence is noted during semiannual run-on and/or run-off erosion monitoring or other monitoring and/or maintenance; and (3) after local seismic events, as specified in the OM&M Plan.	Annually measure for PH3 accumulation with the ET cap capillary break layer. If PH3 is detected above action level in ET cap capillary break layer, take confirmation sample within 7 days. If confirmation sample detects PH3 at or above action level in ET cap capillary break layer, initiate surface scan, ambient air, and low-lying area PH3 sampling within 2 days. Also initiate contingent ET cap topsoil chemistry monitoring. If any sampling result at or above the ET cap surface ≥ 1.0 ppm PH3, initiate fenceline monitoring for PH3 within 15 minutes and report to EPA. If any sampling result at or above the ET cap surface is ≥ 0.05 ppm PH3 but < 1.0 ppm PH, perform confirmation sampling of surface scan, ambient air, and low-lying areas within 2 hours. If any confirmation sampling result at or above the ET cap surface is ≥ 0.05 ppm PH3, then report to EPA and propose an enhanced PH3 monitoring program for the impacted area.	This is not a routine monitoring, but is triggered by measured accumulation of PH3 in the ET cap capillary break layer.
Identify the Decision			
Principal Study Question	Is settlement/movement of the Slag Pit Sump ET cap surface is less than or equal to the expected design settlement rates?	Is PH3 gas accumulating below the ET cap surface and if so, is PH3 gas being released from the ET cap to the ambient air in concentrations that pose a threat to human health or the environment?	If PH3 is accumulating within the ET cap capillary break layer, is the topsoil chemistry (pH) being altered and if so, is the soil density being altered?
Alternative Actions	Evaluation of settlement/movement on the slag pit sump ET cap surface will be used to demonstrate that the capping materials are settling at or near expected design rates.	Monitoring of the ET Cap capillary break layer for evidence PH3 buildup will be used to initiate additional monitoring at and above the ET cap surface to determine if PH3 releases are occurring.	Monitoring of the ET Cap capillary break layer for evidence PH3 buildup will be used to initiate topsoil chemistry (pH) and topsoil properties (density) to determine if the ET cap is capable of functioning as designed.
Identify the Decision Inputs			
Physical Inputs	Vertical and horizontal displacement measurement at each settlement monument.	None.	Topsoil density.
Chemical Inputs	None.	PH3 concentration.	Topsoil pH.
Action Levels	If the total cumulative movement on slag pit sump ET cap is less than the following limits for five consecutive years, then settlement monitoring frequency will be reduced to once every 5 years for the duration of the post-RA monitoring period: - Vertical = 0.03 ft - Horizontal = 0.2 ft	Confirmed 0.05 ppm PH3 concentration in the ET cap capillary break layer triggers surface scan, ambient air, and low-lying area monitoring for PH3. Also triggers contingent ET cap topsoil chemistry monitoring. Any measurement at or above the ET Cap of 1.0 ppm PH3 triggers fenceline monitoring. Confirmed ≥ 0.05 ppm PH3 at surface scan, ambient air, or low-lying area triggers development of enhanced PH3 monitoring program for that area.	Confirmed 0.05 ppm PH3 concentration in the ET cap capillary break layer triggers contingent ET cap topsoil chemistry (pH) monitoring. If topsoil pH is measured (top 12 inches) outside the pH range of 5.0 to 9.0, then soil density measurements (top 24 inches) will be measured. Also, perform a vegetation survey in the affected area to determine if ET cap vegetation is being impacted by the change in topsoil pH. If topsoil density measures outside of the density range of 80% of maximum to 90% of maximum, then a plan to investigate/evaluate topsoil in the affected area will be proposed to EPA.

Table 1.2
CERCLA OM&M PLAN DATA QUALITY OBJECTIVES (DQOs)
CERCLA Monitoring for ET Caps on P4 RAs
(RA-B, RA-C, RA-F1, RA-F2, and RA-K)

DQO Step	Slag Pit Settlement Monitoring	Phosphine (PH3) Monitoring	Contingent ET Cap Topsoil Chemistry Monitoring
Define the Study Boundaries			
Temporal Boundary	Settlement monitoring on the slag pit sump ET cap surface will be conducted annually.	ET cap capillary break layer will be monitored via soil gas probes annually.	Topsoil pH measurements will be made within 10 days of confirmed PH3 measurement above 0.05 ppm. Topsoil density measurements will be made within 10 days of a topsoil pH measurement outside the range of 5.0 to 9.0.
Horizontal Boundary	The geographical boundaries of the slag pit sump ET cap surface.	The geographical boundaries of the ET cap surface.	The geographical boundaries of the affected ET cap surface area.
Vertical Boundary	The slag pit sump ET cap surface.	The ET cap capillary break layer.	From the ET cap capillary break layer to the ET cap surface.
Develop the Decision Rule			
Parameter of Interest	Vertical and horizontal displacement at the settlement monument.	PH3 concentration.	Topsoil pH and topsoil density.
Decision Rule	Decision Rule a: If the total cumulative movement on slag pit sump ET cap is less than the action levels for five consecutive years, then settlement monitoring frequency will be reduced to once every 5 years for the duration of the post-closure monitoring period. Proceed to Decision Rule b. Decision Rule b: If the settlement monument is damaged, buried, or inaccessible, take corrective maintenance action as soon as practicable.	Decision Rule a: If confirmation sample detects PH3 at or above action level in ET cap capillary break layer, initiate surface scan, ambient air, and low-lying area PH3 sampling within 2 days. Also initiate contingent ET cap topsoil chemistry monitoring. Go to Decision Rule b. Decision Rule b: If any sampling result at or above the ET cap surface ≥ 1.0 ppm PH3, initiate fenceline monitoring for PH3 within 15 minutes and report to EPA. If < 1.0 ppm PH3, go to Decision Rule c. Decision Rule c: If any sampling result at or above the ET cap surface is ≥ 0.05 ppm PH3 but < 1.0 ppm PH, perform confirmation sampling of surface scan, ambient air, and low-lying areas within 2 hours. Go to Decision Rule d. Decision Rule d: If any confirmation sampling result at or above the ET cap surface is ≥ 0.05 ppm PH3, then report to EPA and propose an enhanced PH3 monitoring program for the impacted area.	Decision Rule a: If confirmation sample detects PH3 at or above action level in ET cap capillary break layer, initiate ET cap topsoil chemistry (pH) monitoring in the top 12 inches of the ET cap topsoil in the affected area. Go to Decision Rule b. Decision Rule b: If the measured topsoil pH is outside the range of 5.0 to 9.0, then soil density measurements (top 24 inches) will be measured. Also, perform a vegetation survey in the affected area to determine if ET cap vegetation is being impacted by the change in topsoil pH. Go to Decision Rule c. Decision Rule c: If topsoil density measures outside of the density range of 80% of maximum to 90% of maximum, then a plan to investigate/evaluate topsoil in the affected area will be proposed to EPA.
Specify Tolerance Limits on Decision Errors			
Tolerance Limits	Elevation readings = ±0.01 foot Horizontal displacement = ±0.1 foot	No decision errors are established.	pH measurements = ±0.25 pH units Soil density measurements = ±2%
Optimize the Design for Obtaining Data			
Sample Design	The data collection design is described in the *Field Sampling Plan* (Appendix B of the OM&M Plan).	The data collection design is described in the *Field Sampling Plan* (Appendix B of the OM&M Plan).	The data collection design is described in the *Field Sampling Plan* (Appendix B of the OM&M Plan).

Table 1.3
CERCLA OM&M PLAN DATA QUALITY OBJECTIVES (DQOs)
CERCLA Monitoring for Gamma Caps
(RA-A, RA-F, and RA-G)

DQO Step	Gamma Cap Gamma Radiation	Stormwater Erosion/Damage Monitoring	Rodent/Insect Monitoring
State the Problem			
Problem Statement	To be developed.[1]	In order to maintain gamma cap performance, monitor impacts of stormwater runon/runoff on the gamma cap surface or diversion controls, i.e., erosion, ponding, sedimentation, debris accumulation or other damage associated with stormwater.	In order to maintain gamma cap performance, impacts of rodents and/or insects will be monitored on the gamma cap surface, i.e., burrowing or loss of vegetation.
Relevant Deadlines	To be developed.[1]	Semi-annually inspect the gamma cap surface and diversion controls for stormwater/snowmelt runon/runoff damage. This will be performed after the spring snowmelt (in April or May) which usually produces peak runoff for the year and in the fall (September or October) after the peak thunderstorm season is over. Within seven (7) days of a 25-year, 24-hour storm event, perform similar inspection of the cap surface and diversion controls for stormwater runon/runoff damage.	Gamma cap surface will be monitored for evidence of rodent and/or insect activity (including dirt mounds, distressed vegetation, etc.) semi-annually, ground surface conditions permitting.
Identify the Decision			
Principal Study Question	To be developed.[1]	Is stormwater runon/runoff controlled such that the gamma cap integrity/performance is not jeopardized?	Is rodent/insect activity is controlled such that the gamma cap integrity/performance is not jeopardized.
Alternative Actions	To be developed.[1]	Monitoring of the gamma cap topsoil surface for evidence of excessive stormwater erosion, ponding, sedimentation, or other damage will be used to identify and correct excessive stormwater runon/runoff damage.	Monitoring of the gamma cap topsoil surface for evidence of excessive rodent/insect activity will be used to identify and correct excessive rodent/insect activity.
Identify the Decision Inputs			
Physical Inputs	To be developed.[1]	Visual check for any signs of excessive stormwater erosion, ponding, sedimentation, or other damage.	Visual check for any signs of excessive rodent or insect activity.
Chemical Inputs	To be developed.[1]	None.	None.
Action Levels	To be developed.[1]	Any excessive erosion channels or rills in the gamma cap surface, any evidence of ponding or sediment buildup on the cap surface of an area greater than 100 ft^2.	Any unusual or excessive burrowing or soil mounding. Any rodent/insect impacts on vegetation resulting in unacceptable coverage per vegetation monitoring criteria.
Define the Study Boundaries			
Temporal Boundary	To be developed.[1]	Gamma cap surface will be monitored for evidence of stormwater damage semi-annually and after a 25-yr/24-hr storm event, ground surface conditions permitting, throughout the post-RA period.	Gamma cap surface will be monitored for evidence of rodent and/or insect activity semi-annually, ground surface conditions permitting, throughout the post-RA period.
Horizontal Boundary	To be developed.[1]	The geographical boundaries of the gamma cap surface.	The geographical boundaries of the gamma cap surface.
Vertical Boundary	To be developed.[1]	The gamma cap surface.	The gamma cap surface.
Develop the Decision Rule			
Parameter of Interest	To be developed.[1]	Not applicable.	Not applicable.
Decision Rule	To be developed.[1]	Decision Rule: If there is any evidence of excessive erosion, ponding, sedimentation or damage caused by stormwater runon/runoff that could negatively impact cap function, take corrective action as soon as practicable.	Decision Rule: If there is any evidence of excessive or unusual rodent or insect activity that could negatively impact cap function, take corrective action as soon as practicable.
Specify Tolerance Limits on Decision Errors			
Tolerance Limits	To be developed.[1]	Not applicable.	Not applicable.
Optimize the Design for Obtaining Data			
Sample Design	The data collection design will be described in the *Field Sampling Plan* (Appendix B of the OM&M Plan).	The data collection design is described in the *Field Sampling Plan* (Appendix B of the OM&M Plan).	The data collection design is described in the *Field Sampling Plan* (Appendix B of the OM&M Plan).

[1] To be developed following the test gamma cap investigation to be completed in the spring of 2015.

Table 1.4
CERCLA OM&M PLAN DATA QUALITY OBJECTIVES (DQOs)
CERCLA Monitoring for Site-Wide Stormwater Management Systems

DQO Step	Stormwater Erosion/Damage Monitoring
State the Problem	
Problem Statement	In order to maintain cap performance and zero discharge of stormwater from the FMC Plant OU, monitor impacts of stormwater runon/runoff on stormwater conveyance channels, diversion controls, and retention ponds, i.e., erosion, ponding, sedimentation, debris accumulation or other damage associated with stormwater.
Relevant Deadlines	Semi-annually inspect all stormwater management system components (i.e., conveyance channels, diversion controls, and retention ponds) for stormwater/snowmelt runon/runoff damage. This will be performed after the spring snowmelt (in April or May) which usually produces peak runoff for the year and in the fall (September or October) after the peak thunderstorm season is over. Within seven (7) days of a 25-year, 24-hour storm event, perform similar inspection of the stormwater management system components for stormwater runon/runoff damage.
Identify the Decision	
Principal Study Question	Is stormwater runon/runoff controlled such that the cap integrity/performance is not jeopardized and the FMC Plant OU maintains zero discharge of stormwater from the site?
Alternative Actions	Monitoring of the cap surfaces and stormwater management system components for evidence of excessive stormwater erosion, ponding, sedimentation, debris accumulation or other damage will be used to identify and correct excessive stormwater runon/runoff damage.
Identify the Decision Inputs	
Physical Inputs	Visual check for any signs of excessive stormwater erosion, ponding, sedimentation, debris accumulation, or other damage.
Chemical Inputs	None.
Action Levels	Any excessive erosion channels or rills, any evidence of ponding or sediment buildup, any accumulation of debris, and any other observed damage which could impact the performance of the stormwater management system.
Define the Study Boundaries	
Temporal Boundary	Cap surfaces and stormwater management system components will be monitored for evidence of stormwater damage semi-annually and after a 25-yr/24-hr storm event, ground surface conditions permitting, throughout the post-RA period.
Horizontal Boundary	The geographical boundaries of the FMC Plant OU.
Vertical Boundary	The FMC Plant OU ground surface and the surface of all caps and stormwater management system components.
Develop the Decision Rule	
Parameter of Interest	Not applicable.
Decision Rule	Decision Rule: If there is any evidence of excessive erosion, ponding, sedimentation, debris accumulation or damage caused by stormwater runon/runoff that could negatively impact stormwater management system function, take corrective action as soon as practicable.
Specify Tolerance Limits on Decision Errors	
Tolerance Limits	Not applicable.
Optimize the Design for Obtaining Data	
Sample Design	The data collection design is described in the *Field Sampling Plan* (Appendix B of the OM&M Plan).

Table 1.5
CERCLA OM&M PLAN DATA QUALITY OBJECTIVES (DQOs)
CERCLA Monitoring for Site Security Systems

DQO Step	Site Security System Monitoring
State the Problem	
Problem Statement	In order to maintain a secure site, prevent unauthorized entry, and minimize unwarranted exposure to site COCs, monitor and maintain the FMC Plant Site security systems.
Relevant Deadlines	Semi-annually inspect all site security systems, i.e., fences, gates, and signage.
Identify the Decision	
Principal Study Question	Are site security systems in place and functional thus minimizing the potential for unauthorized entry to the FMC Plant Site?
Alternative Actions	Monitoring of the FMC Plant Site security systems will be used to identify and correct any deficiencies or damage to the security systems.
Identify the Decision Inputs	
Physical Inputs	Visual check for any signs of missing, damaged, or non-functional site security system components.
Chemical Inputs	None.
Action Levels	Any missing, damaged, or non-functioning site security system components or any evidence that site security has been breached.
Define the Study Boundaries	
Temporal Boundary	Site security system components will be monitored semi-annually.
Horizontal Boundary	The geographical boundaries of the FMC Plant Site.
Vertical Boundary	The FMC Plant Site ground surface.
Develop the Decision Rule	
Parameter of Interest	Not applicable.
Decision Rule	Decision Rule a: If there is any evidence of missing, damaged, or non-functioning site security systems (as designed), take corrective action as soon as practicable. Go to Decision Rule b. Decision Rule b: If there is any evidence that the FMC Plant Site security has been breached by unauthorized entities, review the designed site security system for potential improvements to minimize unauthorized entry.
Specify Tolerance Limits on Decision Errors	
Tolerance Limits	Not applicable.
Optimize the Design for Obtaining Data	
Sample Design	The data collection design is described in the *Field Sampling Plan* (Appendix B of the OM&M Plan).

Attachment A

Draeger Pac III Calibration Procedure

KW Pocatello Idaho	Draeger Pac III Phosphine Monitor Calibration Procedure	KW-SAF-105 Rev. 1 Issue Date: 12/10/03 Review Date: 1/27/08 Page 1 of 5
Prepared by: Kent Hansen	Authorized by: M.R. Smith	

SCOPE

This procedure describes the steps required to properly calibrate the Draeger Pac III phosphine monitors. All Pac III monitors in use at FMC-Pocatello plant should be calibrated bi-weekly.

RESPONSIBILITIES

It is the responsibility of the KW workforce to ensure that they are always using a properly calibrated Draeger Pac III monitor when operating the GETS system.

It is the responsibility of the KW Management to ensure that all of the equipment necessary to properly calibrate the Draeger Pac III monitors is available at the FMC Pocatello Plant.

RELEVANT DOCUMENTS

- Draeger Pac III Operating Manual
- Draeger XS Phosphine Sensor Data Sheet
- Draeger XS Hydride PH3 Sensor Data Sheet
- KW Health and Safety Plan
- FMC Pond Work Rules

SAFETY, HEALTH AND ENVIRONMENT

All personnel working on the GETS installation project must follow the FMC Pond Work Rules. Phosphine monitors will be used to monitor for the presence of PH3 as outlined in the Pond Work Rules.

Procedure

At least one person will be designated responsibility for calibration of the Draeger Pac III phosphine monitors at the FMC Pocatello plant. There is only one calibration procedure for the Draeger Pac III phosphine monitors. The only difference between the low-range (0 to 20 ppm phosphine) and the high-range (0 to 1000 ppm) monitors is the type of sensor installed in the monitor. The electronics and instrument body are the same. The monitor calibration label on the outside of the monitor will tell you the type of monitor you working with and the last date of monitor calibration.

Checking the Battery:
First check the functionality of the battery. The battery should be replaced approximately every two weeks or when battery voltage drops below 7.9 volts. Battery voltage is shown on the display by pressing the HORN SILENCE or RETURN button two times. On the second press of the button, the current voltage will appear along with the alarm points for battery voltage. If there is a new battery installed, then voltage will be at or above 9 volts. If voltage is below 8.5 volts, change the battery as described below before proceeding. Otherwise skip battery replacement and go to the next step.

Battery Replacement:
Remove the bottom cover by removing the two hex head screws on the back side at the bottom of the monitor using one of the Draeger hex screw drivers. Once these screws are removed slide the bottom cap down and out of the instrument. The battery will be exposed to view. Carefully remove the cap on top of the battery and then the battery. When you connect the new battery the monitor will sound its alarm horn. You can silence this by pressing the HORN SILENCE button. The monitor will go through its menu options showing you sensor range and alarm settings. When it finishes this it will go into a sensor warm-up state. When it is in this warm up state, it will show a message on the display saying it will be "READY in "X" minutes". (Usually the time is 5 minutes.) Not going through this warm up state does not mean that the instrument or its sensor is bad. It still must go though warm up after a battery change even if it is not showing the warm up message on its display.

Entering Sensor Password:
Enter the secured menu by pressing and holding the ENTER key for approximately one minute. You will be presented with a 0000 password in the display and the option to accept the password or CANCEL. You must enter the password in order to gain access to the calibration functions. Press the ENTER key once, the display will show the password with a cursor blinking under the first 0. Press ENTER two more times and the cursor will move to the second and the third 0. Now press the UP arrow (backlight key) until the third 0 advances to 4. Now press the ENTER

key again and the cursor will advance to the last 0. Press the UP arrow key until the 0 advances to 3 and press the ENTER key again. You have entered the password of 0043. Press ENTER to ACCEPT. This is the password for the 0 to 20 ppm monitors. The password for the 0 to 1000 ppm monitor is 1111.

Reset Date and Time:
If you have replaced the battery it will be necessary to reset the current date and time for the monitor. This is done from the third main menu option. These three options are, "DAILY USE", "CALIBRATION", and "CONFIGURE". Enter the CONFIGURE menu by scrolling down using the DOWN arrow (fresh air key) to CONFIGURE and press ENTER. In the CONFIGURE menu scroll down 3 more times to "INSTRUMENT" and then press ENTER. The first item on the Instrument menu is "DATE/TIME". Press ENTER on this item and the date now set will appear. Press ENTER again and a cursor will appear under the month of that date. Press the Up arrow (backlight key) to increase the month and the Down arrow (fresh air key) to decrease the month. This month wraps from 13 to 1 or from 1 to 12. Press ENTER when the month is set correctly. The cursor moves to the day field of the date. Use the Up and/or Down arrows to set the day correctly and press the Enter key again. Now set the year the same way using the Up/Down keys and press ENTER. Press ENTER to 'Accept". Now the time will appear for you to set. Follow a similar sequence of steps to set the correct time. Using the ENTER to Accept. The date and time are now set.

Verifying Calibration Gas Concentration:
Find the calibration gas to be used for the monitor to be calibrated. The calibration gas cylinder will be labeled to identify the precise concentration of phosphine. Each calibration gas cylinder may vary so it is important to note the exact phosphine concentration. The phosphine calibration gas concentration for the low-range monitors should be about 0.50 ppm. The phosphine calibration gas concentration for the high-range monitors should be about 1000 ppm.

Ensure that the calibration concentration is set in the instrument being calibrated. (Since the calibration gas cylinders are only changed periodically it may not be necessary to change this value. But it should be checked with each calibration.) You will need to enter the secured menu in order to change the calibration gas concentration value. (This is done as described in the "Entering Sensor Password" section above.) After entering the main menu navigate down one to CALIBRATE and press ENTER. Then navigate down to the third item which is CAL CONC, and press ENTER. Then press ENTER on the value that appears and change it as needed. Press ENTER and ACCEPT the new value. Proceed to the next step.

Zero the Monitor:
Allow the monitor to stabilize (after warm-up) for at least 2 minutes in an atmosphere without any phosphine gas in it. Enter the secured menu system as described above. Navigate to the CALIBRATE menu options by pressing the Down arrow (fresh air calibration) key once. Press ENTER on the word CALIBRATION. You should now be in the CALIBRATION menu with the cursor on the word "ZERO". Press the ENTER key and you will see the monitor's current reading and the word "ENTER" on the bottom of the display. The reading should be very close to zero (±0.01) and reasonably stable. (If the reading flickers or jumps around then the sensor is most likely bad and should be changed.) Press ENTER and you will see "WAITING" appear on the bottom of the display for a few seconds and then the display will show ZERO VALID. This message will timeout and you will go back to the calibration menu. This step is completed.

Span the Monitor.
After zeroing the monitor press the DOWN arrow on the calibration menu to the word SPAN (which will be one more time) and then press ENTER. You will use the phosphine calibration gas for this step. **This step must be done with care.** Make sure that the calibration adaptor (cap) assembly for the Draeger instrument is attached by hose to the calibration gas and that the calibration cap is on the instrument. **Ensure that the hose between the calibration adaptor and the calibration gas cylinder has been flushed with at least 0.5 cfh flow for at least one minute with the calibrating gas being measured.** After flushing the hose set the calibration gas flow to 0.50 cfh. Now wait for the reading on the instrument to stabilize. This may take several minutes but you should allow at least two minutes. When this reading stops changing the span may be adjusted by pressing the ENTER key again. Again the instrument will display WAITING for a few seconds followed by "SPAN VALID". Shut off the calibration gas and remove the calibration cap from the instrument. The instrument should start sounding its alarm horn after a while. After you have removed the calibration cap and the concentration of phosphine drops the alarm can be acknowledged and will go off. You may want tot exit the menu system and acknowledge the horn and/or watch these numbers drop to zero. This step is complete.

Clear Alarms:
Clear all alarms generated during the calibration procedure by entering the menu system as before and pressing ENTER on the DAILY USE menu option. Scroll down this menu to the RESET ALARMS option and press ENTER. Likewise scroll to the RESET EXPOSURES option and press ENTER to clear all exposures. (These need to be cleared because your calibration procedure just set the maximum exposure to something around 0.50 ppm or 1000 ppm and this may not be cleared by turning the instrument off and then on again. Thus operators may not know what their maximum exposure has been during normal use.)

Attach Calibration Tag:
Completely fill out a new calibration tag for the monitor which has been calibrated and attach the tag to the monitor. This completes the calibration procedure.

Appendix B

Field Sampling Plan (FSP)

FMC Idaho LLC, Pocatello, Idaho

FMC OU REMEDIAL DESIGN
DRAFT OM&M PLAN
APPENDIX B
DRAFT FIELD SAMPLING PLAN (FSP)

January 2015

MWH

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1.0 INTRODUCTION

This field sampling plan (FSP) implements the quality control requirements for CERCLA post-Remedial Action monitoring for the soil remedy as specified in the *Quality Assurance Project Plan* (QAPP) as included in Appendix A of the *Operation, Monitoring and Maintenance Plan* (OM&M Plan). This FSP and the associated QAPP constitute the CERCLA sampling and analysis plan (SAP) for the following post-Remedial Action monitoring activities:

- Vegetation cover monitoring on the ET cap surfaces;
- Settlement monitoring of the ET cap over the slag pit sump;
- Topsoil depth monitoring on the ET caps;
- Rodent/insect impact monitoring on the ET and gamma cap surfaces;
- Stormwater/snowmelt run-off erosion monitoring on the ET and gamma cap surfaces;
- Site-wide stormwater run-off management system monitoring; and
- Site security system monitoring.

1.1 BACKGROUND

1.1.1 Location

The FMC OU, which includes the former plant process areas, other areas related to the plant operation, and adjacent FMC-owned areas, occupies approximately 1,450 acres in Power County, Idaho on privately-owned fee land, most of which is located within the exterior boundaries of the Fort Hall Indian Reservation (see Figure 1-1).

1.1.2 Site History

The FMC elemental phosphorus facility, occupying most of the property that FMC owns south of Highway 30 near Pocatello and referred to as the "FMC Plant Site," ceased production in December 2001. From 2002 through 2006, the facility was decommissioned and its infrastructure was demolished to ground level. The FMC facility operated essentially continuously from 1949 (prior to that time the site was primarily in agricultural use) through 2001.

The FMC facility produced elemental phosphorus from phosphate-bearing shale ore mined regionally. The shale, combined with coke and silica, was fed into four electric arc furnaces located in the furnace building (within remedial area [RA]-B). The furnace reaction primarily yielded gaseous elemental phosphorus (P4), CO gas, slag, and ferrophos (FeP). The P4 gas was subsequently condensed to a liquid state and stored in sumps and tanks prior to shipment off-site as product. P4 will burn upon contact with air. Therefore, to prevent oxidation, the condensed P4 product was kept covered with water from the time it was produced through loading and transport off-site.

The FMC OU is part of the Eastern Michaud Flats (EMF) Superfund site.

1.1.3 Nature and Extent of Soil Contamination

The EMF Site has been the subject of many environmental investigations. Most notable are the RI and SRI, as summarized in the EMF RI Report (BEI, 1996), SRI Report (MWH, 2009a), SRI Addendum Report (MWH, 2009b) and Groundwater Current Conditions Report (GWCCR, MWH, 2009c). These reports provide detailed information on the results of the investigations conducted at the FMC OU.

Primary release mechanisms of contaminants into the surrounding environment at the FMC OU include erosion and storm water runoff, extensive use of hazardous wastes as fill, disposal of elemental phosphorus-contaminated wastes in CERCLA ponds, and potential migration of soil COCs to groundwater from infiltration of precipitation.

Phosphine gas (PH3) may be generated in fill within RAs that contain P4 because of the reaction of P4 with water that may be present in fill. PH3 has not been detected in ambient air at levels that would present a risk to human health in the FMC OU (MWH, 2010a). Radium-226 in surface soil has been determined to be a primary COC in surface soil because of risks associated with gamma exposure. P4 and other contaminants of concern (COCs) exist at depths down to approximately 90 feet below ground surface (bgs).

1.1.4 Interim Record of Decision Amendment

The Interim Record of Decision Amendment (IRODA, EPA, 2012) presents the selected remedy for the FMC OU. With respects to contaminated soils at the FMC OU, the selected interim remedy will protect human health and the environment by eliminating, reducing, or controlling risks by containing contaminated soils with engineering controls and institutional controls. This OM&M Plan ensures that the soil remedial actions continue to perform as designed. A separate Groundwater Operation, Monitoring and Maintenance Plan will be developed for the groundwater elements of the remedy defined in the IRODA. Additionally, land use restrictions will limit activities at the FMC OU to commercial/industrial uses, prohibit activities that may disturb the implemented remedial actions, and restrict human consumption of contaminated groundwater. Land use restrictions will also reference an Excavation and Fill Management Plan.

1.1.5 Remedial Action Objectives for Site Soils

The RAOs for contaminated soils at the FMC OU include the following elements:

- Prevent human exposure via all potential pathways (external gamma radiation exposure, inhalation of radon in potential future buildings, incidental soil ingestion, dermal absorption, and fugitive dust inhalation) to soils and solids contaminated with COCs thereby resulting in an unacceptable risk to human health assuming current or reasonably anticipated future land use.

- Minimize generation of and prevent exposure to PH3 and other gases that represent an unacceptable risk to human health and the environment.

- Prevent direct exposure to P4 under conditions that may cause it to spontaneously combust, posing a fire hazard as well as resultant air emissions that represent a significant threat to human health or the environment, and prevent such conditions.

- Prevent potential ingestion of groundwater containing COCs in concentrations exceeding risk-based concentrations (RBC) or applicable or relevant and appropriate requirements (ARARs), or site-specific background concentrations if RBCs or ARARs are more stringent than background.

- Reduce the release and migration of COCs to the groundwater from FMC OU sources resulting in concentrations in groundwater exceeding RBCs or ARARs, or site-specific background if RBCs or ARARs are more stringent than background.

- Reduce the release and migration of COCs to surface water from FMC OU sources at concentrations exceeding RBCs or ARARs, including water quality criteria pursuant to Sections 303 and 304 of the Clean Water Act.

1.1.6 Selected Remedy Summary for Site Soils

The remedy for FMC OU soils selected in the 2012 IRODA replaces the remedy for these soils that was selected in the 1998 ROD. The IRODA soil remedy addresses metals, radionuclides, and other COCs identified in soils and fill at the FMC OU. The locations of the various RAs are shown in Figure 2-2. The IRODA selected remedy for the FMC OU soils includes the following components:

- Place evapotranspiration (ET) caps over areas that contain non-slag fill (such as P4, phossy solids, precipitator solids, kiln scrubber solids, industrial waste water sediments, calciner pond solids, calcined ore, and plant/construction landfill debris) to (1) prevent migration of contaminants to groundwater, preventing the infiltration of rainwater, and (2) prevent direct contact with contaminants by current and or future workers. ET caps will be placed over the following RAs: RA-B, RA-C, RA-D, RA-E, RA-F1, RA-F2, RA-H, and RA-K as shown on Figure 1-2;

- Place approximately 12 inches of soil cover over (1) areas containing slag fill, (2) ore stockpiles, and (3) the former Bannock Paving areas to prevent gamma radiation and fugitive dust exposure to potential future workers. Gamma radiation-protective soil covers will be placed over RA-A, RA-A1, RA-F, and RA-G, as shown on Figure 1-2;

- Excavate contaminated soil from Parcel 3 of FMC's Northern Properties, also known as RA-J, and consolidate that soil onto the Former Operations Area to prevent exposure of residents and future workers to elevated levels of radionuclides in surface soil;

- Clean underground reinforced concrete pipes within RA-A that may contain P4 and radionuclides to prevent exposure to potential future workers;

- Implement a long-term groundwater monitoring program to evaluate the performance of the soil and groundwater remedial actions to determine their effectiveness in reaching the cleanup levels, and provide information needed for developing a final groundwater remedy protective of human health and the environment if the current interim remedy cannot meet cleanup requirements within an acceptable timeframe. The long-term groundwater monitoring program will be based on the current groundwater monitoring program, which may be refined during the Remedial Design/Remedial Action phase;

- Implement a gas monitoring program at the FMC OU capped ponds (also referred to as "CERCLA ponds" to distinguish them from the "RCRA-regulated" ponds) and subsurface areas where P4 is present to identify potential PH3 and other potential gas generation at concentrations that could pose a risk to human health;

- Implement and maintain institutional controls that include environmental land use easements prohibiting activities that may disturb implemented remedies (such as digging in capped areas) and restrict the use of contaminated groundwater;

- Install engineering controls or barriers, such as additional fencing to further limit site access;

- Implement a remedy management system to integrate the existing RCRA Pond caps with the development of new caps, access roads, groundwater extraction system, and utility lines;

- Implement an FMC OU-wide storm water runoff management plan to minimize cap erosion and the infiltration of contaminants of concern to groundwater, including FMC OU-wide grading and the collection of storm water in retention basins; and,

- Conduct operations and maintenance of implemented remedial actions.

Other actions, including post-closure activities at the RCRA-regulated units, have been and continue to be performed at the FMC Facility. These actions are not part of the FMC OU because they are conducted under RCRA requirements for closed hazardous waste management units. The post-closure work performed at these units remains regulated under RCRA.

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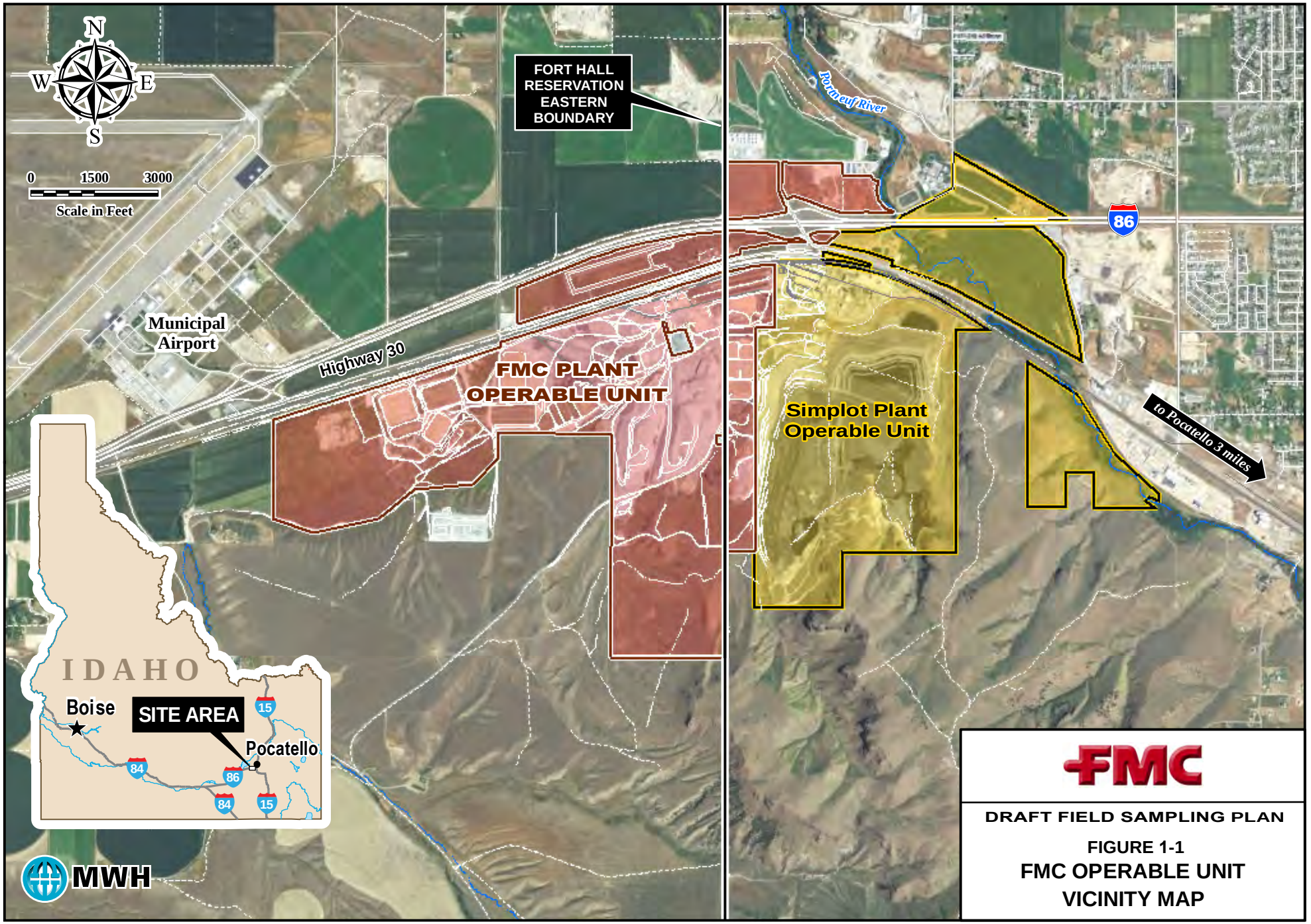

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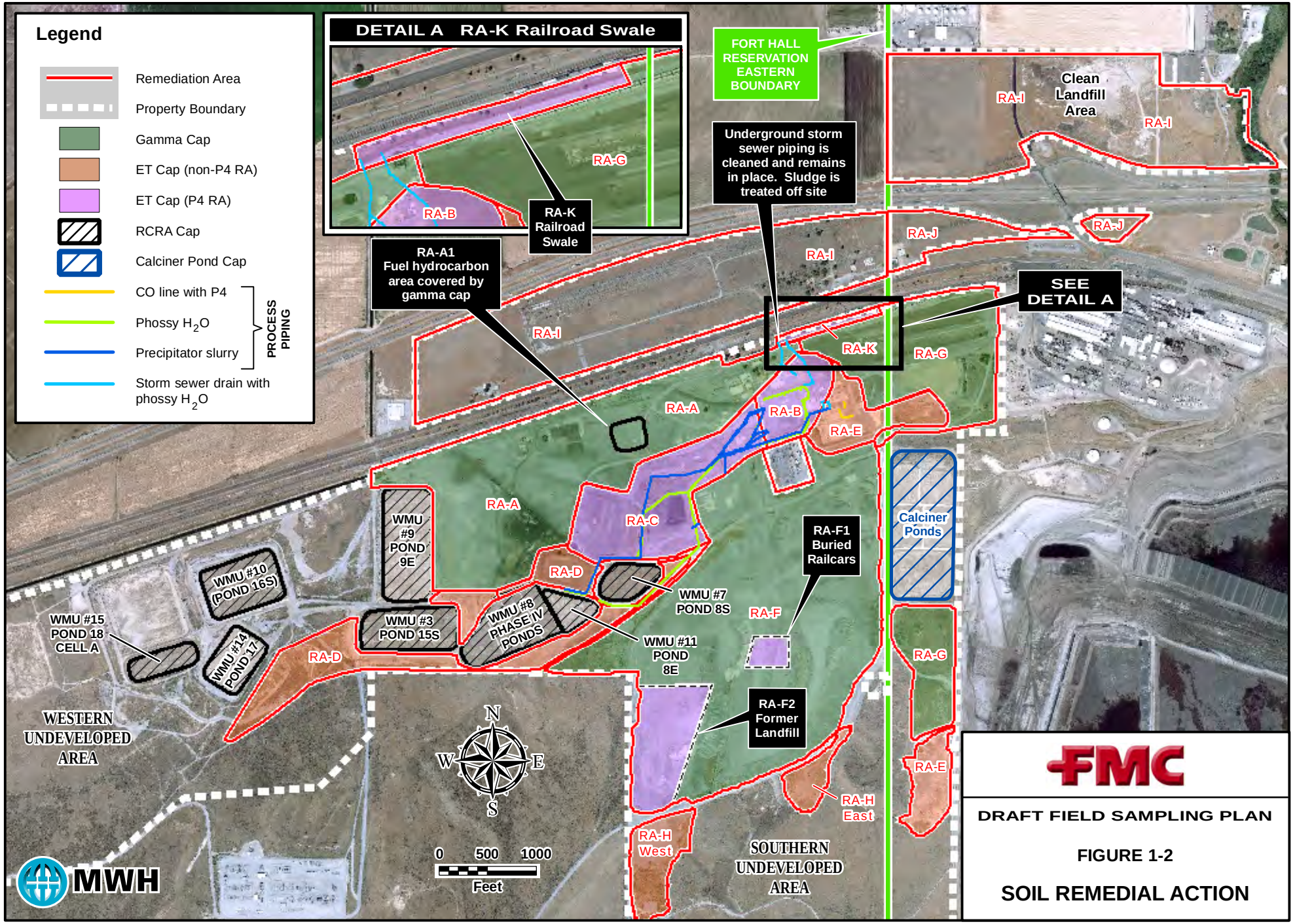

2.0 MONITORING OBJECTIVES

The Data Quality Objectives (DQOs) have been developed for the CERCLA soil remedy post-remedial action monitoring as presented in the QAPP (Appendix A of the OM&M Plan). The following presents a discussion on the overall CERCLA soil remedy post-remedial action monitoring objectives upon which the DQOs are based.

2.1 MAINTAINING THE INTEGRITY AND EFFECTIVENESS OF THE ET CAPS IN NON-P4 AREAS

The objectives of the ET caps are to: 1) prevent exposure via all viable pathways (external gamma radiation, incidental soil ingestion, dermal absorption, and fugitive dust inhalation) to soils and solids contaminated with COCs that would result in an unacceptable risk to human health under current or reasonably anticipated future land use; 2) reduce the release and migration of COCs to the groundwater from facility sources that may result in concentrations in groundwater exceeding RBCs or chemical-specific ARARs, specifically Maximum Contaminant Levels (MCLs), or reduce to site-specific background concentrations if those are higher, and 3) for the RAs with known or suspected P4 in the subsurface, prevent the direct exposure to elemental phosphorus under conditions that may spontaneously combust, posing a fire hazard or resultant air emissions that represent a significant risk to human health and the environment, and minimize generation and prevent exposure to phosphine and other gases at levels that represent a significant risk to human health and the environment.

Remedial Areas (RAs) that have ET caps but do not contain P4 include RA-D, RA-E, and RA-H. The stated performance standard for ET caps in theses RAs is the successful implementation of the final design, which will be evaluated by the following CERCLA monitoring elements:

- Routine annual or semi-annual inspection of cap topsoil depth indicators; signs of stormwater erosion/damage, signs of rodent and/or insect damage, and stormwater diversion controls.
- Contingent monitoring for erosion/damage to the cap or stormwater diversion controls to be implemented within seven days after a 25-year storm, 24-hour storm or a seismic event.
- Routine measurements consisting of annual review of topsoil depth using depth indicators and an annual vegetation survey.

A summary of the monitoring associated with maintaining the integrity and effectiveness of ET caps in non-P4 areas is presented in Table 2.1. The DQOs are presented in Table 1.1 of the QAPP.

2.2 MAINTAINING THE INTEGRITY AND EFFECTIVENESS OF THE ET CAPS IN P4 AREAS

RAs that have ET caps and are known or suspected of containing P4 include RA-B, RA-C, RA-F1, RA-F2, and RA-K. The CERCLA monitoring elements for maintaining the integrity and

effectiveness of these ET caps are the same as for ET caps in non-P4 RAs with the addition of the following elements:

- Monitoring one settlement monument that will be re-established for the Slag Pit Sump at the same planar coordinates and at the elevation of the ground surface level of the ET cap at that location within RA-B; and

- Monitoring for phosphine gas within the capillary break layer (and above the surface of the cap, if triggered) and soil chemistry changes due to potential decomposition of phosphine within the soil (if triggered).

A summary of the monitoring associated with maintaining the integrity and effectiveness of ET caps in P4 areas is presented in Table 2.2. The DQOs are presented in Table 1.2 of the QAPP.

2.3 MAINTAINING THE INTEGRITY AND EFFECTIVENESS OF THE GAMMA CAPS

The objective of the gamma caps is to prevent exposure via all viable pathways (external gamma radiation, incidental soil ingestion, dermal absorption, and fugitive dust inhalation) to soils and solids contaminated with COCs that would result in an unacceptable risk to human health under current and reasonably anticipated future land use. The RAs which have gamma caps include RA-A, RA-F, and RA-G.

The stated performance standard for gamma caps is the successful implementation of the final design, which will be based on the Gamma Cap Performance Evaluation described in Section 3.2.2 of the *Remedial Design Work Plan* (MWH, 2013). The CERCLA monitoring elements for maintaining the integrity and effectiveness of gamma caps are:

- Routine annual or semi-annual inspection for signs of erosion, rodent and insect damage, and/or stormwater conveyance/diversion controls.

- Contingent monitoring for erosion/damage to the cap or stormwater diversion controls to be implemented within seven days after a 25-year storm, 24-hour storm or a seismic event.

- Routine measurements consisting of gamma emission surveys/measurements to evaluate achievement of the radium-226 soil cleanup level. Pursuant to EPA's January 29, 2014 comments on the Gamma Cap Performance Evaluation Report, FMC and EPA will further discuss an additional study to develop a method and procedure for measuring gamma emissions above the gamma cap for performance standard verification. Frequency, action triggers and response actions will be based on the gamma emission survey method and will be developed/detailed after completion of the test gamma cap data gap investigation to be performed in the spring of 2015.

A summary of the monitoring associated with maintaining the integrity and effectiveness of gamma caps presented in Table 2.3. The DQOs are presented in Table 1.3 of the QAPP.

2.4 MAINTAINING THE INTEGRITY AND EFFECTIVENESS OF THE SITE-WIDE STORMWATER MANAGEMENT SYSTEMS

The objectives of the site-wide stormwater management infrastructure are to: 1) implement a site-wide stormwater capture, conveyance and detention system that minimizes erosion and diverts water from the planned ET and gamma covers and existing capped areas, and 2) integrate the stormwater management system and grading plans with the existing and planned caps, access roads, infrastructure and monitoring systems.

The stated performance standard for site-wide stormwater runoff is that the site-wide stormwater management system infrastructure is to establish the stormwater management controls such that the ET and gamma caps meet their respective performance standards, and maintain the zero stormwater discharge status of the FMC plant site. The CERCLA monitoring elements for site-wide stormwater runoff controls are:

- Routine semi-annual inspection of stormwater runoff management infrastructure including diversion controls and detention ponds.
- Contingent monitoring for erosion/damage to stormwater runoff management infrastructure to be implemented within seven days after a 25-year storm, 24-hour storm or a seismic event.

A summary of the monitoring associated with maintaining the integrity and effectiveness of site-wide stormwater management systems is presented in Table 2.4. The DQOs are presented in Table 1.4 of the QAPP.

2.5 PROTECTION AND MAINTENANCE OF THE SITE SECURITY SYSTEMS

The objective of the site security system monitoring is to ensure that site security systems are in place, functional, and maintained. Site security systems for the FMC Plant Site include fencing, secured gates, and warning signs. The stated performance standard for site-wide security is that the site security systems will be installed and maintained to minimize unauthorized entry onto the FMC plant site. The CERCLA monitoring elements for the site security systems are:

- Routine semi-annual inspection of site-wide security infrastructure including fences, gates, and signage.
- Review of security breaches to evaluate the need for security system improvements.

A summary of the monitoring associated with maintaining the integrity and effectiveness of site security systems is presented in Table 2.5. The DQOs are presented in Table 1.5 of the QAPP.

TABLE 2.1
FIELD SAMPLING PLAN SUMMARY
FOR EVAPOTRANSPIRATIVE CAPS (Non-P4 RAs)
FMC Corporation - Pocatello, Idaho

Post-Remedial Monitoring Element[1]	Measurement/Inspection	Activity Frequency	Action Trigger/Unacceptable Condition	Response Action
Routine Inspections	Topsoil Depth Indicators	Annually[2]	Visually apparent damage to, or obscured topsoil depth indicators.	Maintenance action as soon as practicable[3].
	Signs of Stormwater Erosion/Damage	Semiannually	Signs of excessive run-on/runoff cap erosion or other damage, or sediment buildup.	Maintenance action as soon as practicable[3].
	Stormwater Diversion Controls	Semiannually	Damage to or buildup within diversion control infrastructure.	Maintenance action as soon as practicable[3].
	Rodent/Insect Damage	Semiannually	Excessive rodent or insect activity causing damage to the cap.	Repair damage as soon as practicable[3].
25-Year, 24-Hour Storm, Seismic Event Inspections	Signs of Stormwater Erosion/Damage	Within 7 Days[4]	Signs of excessive run-on/run-off cap erosion or other damage, or sediment buildup.	Maintenance action as soon as practicable[3].
	Stormwater Diversion Controls	Within 7 Days[4]	Damage to or buildup within diversion control infrastructure.	Maintenance action as soon as practicable[3].
Routine Measurements	Vegetation Survey	Annually[2]	33% or more of transect plots less than 0.5 plant per square foot.	Areas of non-compliance are reseeded in the fall.
	Topsoil Depth	Annually[2]	>2 inches below installed thickness at 50% of indicators.	Evaluate topsoil on cap. If warranted, add topsoil[4] and reseed in the fall.

Notes:

[1] This list of post-remedial monitoring and maintenance elements apply to evapotranspiritive caps over areas RA-E, RA-F2, RA-H that do not contain elemental phosphorous.

[2] Cap surface vegetation and topsoil depth monitoring will be performed annually until 5 consecutive years meet the acceptable vegetation density / topsoil depth (i.e., do not exceed triggers for maintenance) after which this monitoring will be discontinued.

[3] Repairs / maintenance will commence within 7 days except if frozen soil / snow cover / muddy conditions exist such that cap surface could be damaged in order to implement the repair/maintenance activity or are not feasible due to snow cover / frozen soil conditions (possible between November through May). If maintenance / repairs are delayed by surface conditions any repairs or maintenance will commence within 7 days of the presence of acceptable cap surface conditions. In the event maintenance or repairs must be delayed beyond commencement within 7 days for cause(s) other than frozen soil / snow cover / muddy conditions,FMC will notify EPA within 48 hours of the observation of a condition for which the maintenance/repair will be delayed.

[4] The monitoring will be performed within 7 days of the triggering storm or seismic event except if not feasible due to inaccessibility to the site or snow cover(possible between November through May). If the monitoring is delayed, the monitoring will be performed within 7 days of the ability to access the site.

TABLE 2.2
FIELD SAMPLING PLAN SUMMARY
FOR EVAPOTRANSPIRATIVE CAPS (RAs with P4)
FMC Corporation - Pocatello, Idaho

Post-Remedial Monitoring Element[1]	Measurement/Inspection	Activity Frequency	Action Trigger/Unacceptable Condition	Response Action
Routine Inspections	Topsoil Depth Indicators	Annually[2]	Visually apparent damage to, or obscured topsoil depth indicators.	Maintenance action as soon as practicable[4].
	Settlement Monument (Re-established for Slag Pit Sump)	Annually[3]	Visually apparent damage to, or obscured settlement monument.	Maintenance action as soon as practicable[4].
	Signs of Stormwater Erosion/Damage	Semiannually	Signs of excessive run-on/runoff cap erosion or other damage, or sediment buildup.	Maintenance action as soon as practicable[4].
	Stormwater Diversion Controls	Semiannually	Damage to or buildup within diversion control infrastructure.	Maintenance action as soon as practicable[4].
	Rodent/Insect Damage	Semiannually	Excessive rodent or insect activity causing damage to the cap.	Maintenance action as soon as practicable[4].
25-Year, 24-Hour Storm Event Inspections	Signs of Stormwater Erosion	Within 7 Days[5]	Signs of excessive run-on/run-off cap erosion or other damage, or sediment buildup.	Maintenance action as soon as practicable[4].
	Stormwater Diversion Controls	Within 7 Days[5]	Damage to or buildup within diversion control infrastructure.	Maintenance action as soon as practicable[4].
Seismic Event	Settlement Survey for Slag Pit Sump	Within 7 Days[5]	Exceeds acceptable settlement rate.	Engineering evaluation and repair of impacted cap areas.
Routine Measurements	Phosphine Gas Survey[6]	Annually for 5 Years	Soil gas measurement ≥ 0.05 ppm PH3 will trigger monitoring above ET cap surface. Any measurement above the ET cap surface ≥ 1.0 ppm PH3 will trigger fenceline monitoring.	Initiate confirmation soil gas sampling and above-cap monitoring (i.e., surface scan, ambient air, and low-lying area monitoring). If confirmed surface scan, ambient air, or low-lying area monitoring ≥ 0.05 ppm PH3, FMC will propose an enhanced PH3 monitoring program for that area. Any measurement above the ET cap surface ≥ 1.0 ppm PH3 will trigger fenceline monitoring.
	Contingent Soil Chemistry Monitoring for soil pH and soil density[7]	Annually for 5 Years	Soil chemistry monitoring for a given area will only be triggered if confirmed soil gas measurement ≥ 0.05 ppm PH3. Soil pH action trigger will be if top 12 inches of soil pH is outside the range of 5 to 9. If so, soil density action trigger will be if top 24 inches of soil has soil density outside the range of 80% of maximum dry density to 90% of maximum dry density.	Enhanced soil chemistry/properties evaluation will be proposed for a given area if soil pH and/or soil density measurements fall outside the specified trigger ranges.
	Vegetation Survey	Annually[2]	33% or more of transect plots less than 0.5 plant per square foot.	Areas of non-compliance are reseeded in the fall.
	Topsoil Depth Measurements	Annually[2]	>2 inches below installed thickness at 50% of indicators.	Evaluate topsoil on cap. If warranted, add topsoil[5] and reseed in the fall.
	Settlement Survey for Slag Pit Sump	Annually[4]	Exceeds acceptable settlement rate.	Engineering evaluation and repair of impacted cap areas.

Notes:

[1] This list of post-remedial monitoring and maintenance elements apply to evapotranspiritive caps over areas RA-B, RA-C, RA-D, RA-K, RA-F1 where elemental phosphorous may exist.

[2] Cap surface vegetation and topsoil depth monitoring will be performed annually until 5 consecutive years meet the acceptable vegetation density / topsoil depth (i.e., do not exceed triggers for maintenance) after which this monitoring will be discontinued.

[3] Settlement monitoring will be performed annually during the post-remedial period until the total cumulative movements for the previous five years are less than 0.03 foot vertically after which settlement monitoring will performed every 5 years.

[4] Repairs / maintenance will commence within 7 days except if frozen soil / snow cover / muddy conditions exist such that cap surface could be damaged in order to implement the repair/maintenance activity or are not feasible due to snow cover / frozen soil conditions (possible from November through May). If maintenance / repairs are delayed by surface conditions any repairs or maintenance will commence within 7 days of the presence of acceptable cap surface conditions. In the event maintenance or repairs must be delayed beyond commencement within 7 days for cause(s) other than frozen soil / snow cover / muddy conditions, FMC will notify EPA within 48 hours of the observation of a condition for which the maintenance/repair will be delayed.

[5] The monitoring will be performed within 7 days of the triggering storm or seismic event except if not feasible due to inaccessibility to the site or snow cover (possible from November through May). If the monitoring is delayed, the monitoring will be performed within 7 days of the ability to access 1) the site (erosion monitoring) and 2) the settlement monument and depth indicators.

[b] Phosphine gas monitoring will be performed direct soil gas sampling within the capillary break layer of the ET Cap.

[7] Soil chemistry monitoring will be a contingent action and will only be perfromed if PH3 is detected at or above 0.05 ppm PH3 in the confirmed soil gas monitoring.

TABLE 2.3

FIELD SAMPLING PLAN SUMMARY
FOR GAMMA CAPS
FMC Corporation - Pocatello, Idaho

Post-Remedial Monitoring Element[1]	Measurement/Inspection	Activity Frequency	Action Trigger/Unacceptable Condition	Response Action
Routine Inspections	Signs of Stormwater Erosion/Damage	Semiannually	Signs of excessive run-on/runoff cap erosion or other damage, or sediment buildup.	Maintenance action as soon as practicable[3].
	Stormwater Diversion Controls	Semiannually	Damage to or buildup within diversion control infrastructure.	Maintenance action as soon as practicable[3].
	Rodent/Insect Damage	Semiannually	Excessive rodent or insect activity causing damage to the cap.	Maintenance action as soon as practicable[3].
25-Year, 24-Hour Storm, Seismic Event Inspections	Signs of Stormwater Erosion/Damage	Within 7 Days[4]	Signs of excessive run-on/run-off cap erosion or other damage, or sediment buildup.	Maintenance action as soon as practicable[3].
	Stormwater Diversion Controls	Within 7 Days[4]	Damage to or buildup within diversion control infrastructure.	Maintenance action as soon as practicable[3].
Routine Measurements	Cap Surface Gamma Radiation	Every 5 years	TBD[5]	TBD[5]

Notes:

[1] This list of post-remedial monitoring and maintenance elements apply to Gamma caps over areas RA-A, RA-A1, RA-F, RA-G that do not contain elemental phosphorous.

[2] Cap surface vegetation and topsoil depth monitoring will be performed annually until 5 consecutive years meet the acceptable vegetation density / topsoil depth (i.e., do not exceed triggers for maintenance) after which this monitoring will be discontinued.

[3] Repairs / maintenance will commence within 7 days except if frozen soil / snow cover / muddy conditions exist such that cap surface could be damaged in order to implement the repair/maintenance activity or are not feasible due to snow cover / frozen soil conditions (possible between November through May). If maintenance / repairs are delayed by surface conditions any repairs or maintenance will commence within 7 days of the presence of acceptable cap surface conditions. In the event maintenance or repairs must be delayed beyond commencement within 7 days for cause(s) other than frozen soil / snow cover / muddy conditions,FMC will notify EPA within 48 hours of the observation of a condition for which the maintenance/repair will be delayed.

[4] The monitoring will be performed within 7 days of the triggering storm or seismic event except if not feasible due to inaccessibility to the site or snow cover(possible between November through May). If the monitoring is delayed, the monitoring will be performed within 7 days of the ability to access the site.

[5] This monitoring, frequency, and response actions will be developed after completion of the test gamma cap investigation to be completed in Spring 2015.

TABLE 2.4

FIELD SAMPLING PLAN SUMMARY
FOR SITE-WIDE STORMWATER RUNOFF MANAGEMENT
FMC Corporation - Pocatello, Idaho

Objective: The objectives of the site-wide stormwater management and grading plans are to 1) establish the elevation contours for the subgrade to receive the ET and gamma caps, 2) design a site-wide stormwater capture, conveyance and detention system that minimizes erosion and diverts water from the planned ET and gamma covers and existing capped areas, and 3) integrate the stormwater management system and grading plans with the existing and planned caps, access roads, infrastructure and monitoring systems.

Post-Remedial Monitoring Element[1]	Measurement/Inspection	Activity Frequency	Action Trigger/Unacceptable Condition	Response Action
Routine Inspections	Signs of Stormwater Erosion	Semiannually	Signs of excessive run-on/runoff or other damage, or sediment buildup.	Maintenance action as soon as practicable[2].
	Stormwater Diversion Controls	Semiannually	Damage to or buildup within diversion control infrastructure.	Maintenance action as soon as practicable[2].
	Stormwater Detention Ponds	Semiannually	Visual identification of areas of ponding or potential surface water impoundment.	Maintenance action as soon as practicable[2].
25-Year, 24-Hour Storm Event Inspections	Signs of Stormwater Erosion	Within 7 Days[3]	Signs of excessive run-on/runoff or other damage, or sediment buildup.	Maintenance action as soon as practicable[2].
	Stormwater Diversion Controls	Within 7 Days[3]	Damage to or buildup within diversion control infrastructure.	Maintenance action as soon as practicable[2].
	Stormwater Detention Ponds	Within 7 Days[3]	Visual identification of areas of ponding or potential surface water impoundment.	Maintenance action as soon as practicable[2].

Notes:

[1] This list of post-remedial monitoring and maintenance elements apply to site-wide stormwater runoff management infrastructure

[2] Repairs / maintenance will commence within 7 days except if frozen soil / snow cover / muddy conditions exist such that cap surface could be damaged in order to implement the repair/maintenance activity or are not feasible due to snow cover / frozen soil conditions (possible from November through May). If maintenance / repairs are delayed by surface conditions any repairs or maintenance will commence within 7 days of the presence of acceptable cap surface conditions. In the event maintenance or repairs must be delayed beyond commencement within 7 days for cause(s) other than frozen soil / snow cover / muddy conditions, FMC will notify EPA within 48 hours of the observation of a condition for which the maintenance/repair will be delayed.

[3] The monitoring will be performed within 7 days of the triggering storm or seismic event except if not feasible due to inaccessibility to the site or snow cover(possible from November through May). If the monitoring is delayed, the monitoring will be performed within 7 days of the ability to access 1) the site (erosion monitoring) and 2) the monuments / indicators (settlement and soil creep monitoring).

TABLE 2.5

FIELD SAMPLING PLAN SUMMARY
FOR SITE SECURITY SYSTEMS
FMC Corporation - Pocatello, Idaho

Objective: The objective of the site security system monitoring is to ensure that site security systems are in place, functional, and maintained. Site security systems for the FMC Plant Site include fencing, secured gates, and warning signs. .

Post-Remedial Monitoring Element[1]	Measurement/Inspection	Activity Frequency	Action Trigger/Unacceptable Condition	Response Action
Routine Inspections	Site-wide fences	Semiannually	Fence damage, conditions which allow for unauthorized entry, and/or evidence of tampering.	Maintenance action as soon as practicable[2].
	Site-wide gates	Semiannually	Gate opened, unlocked, damaged, conditions which allow for unauthorized entry, and/or evidence of tampering.	Maintenance action as soon as practicable[2].
	Site-wide signage	Semiannually	Signs missing, damaged, or un-readable.	Maintenance action as soon as practicable[2].

Notes:

[1] This list of post-remedial monitoring and maintenance elements apply to site security systems and infrastructure

[2] Repairs / maintenance will commence within 7 days except if weather conditions exist which prevent access to the area needing repairs. If maintenance / repairs are delayed by weather conditions, repairs or maintenance will commence within 7 days of acceptable conditions. In the event maintenance or repairs must be delayed beyond commencement within 7 days other than weather conditions, FMC will notify EPA within 48 hours of the observation of a condition for which the maintenance/repair will be delayed (e.g., waiting for replacement parts or service).

3.0 MONITORING LOCATIONS AND FREQUENCY

The CERCLA soil remedy post-remedial action monitoring locations and frequency are summarized in Tables 2.1 through 2.5 and discussed in the subsections below.

3.1 CAP INTEGRITY MONITORING FOR ET CAPS

The objectives of the ET caps are to 1) prevent exposure via all viable pathways (external gamma radiation, incidental soil ingestion, dermal absorption, and fugitive dust inhalation) to soils and solids contaminated with COCs that would result in an unacceptable risk to human health under current or reasonably anticipated future land use; 2) reduce the release and migration of COCs to the groundwater from facility sources that may result in concentrations in groundwater exceeding RBCs or chemical-specific ARARs, specifically Maximum Contaminant Levels (MCLs), or reduce to site-specific background concentrations if those are higher, and 3) for the RAs with known or suspected P4 in the subsurface, prevent the direct exposure to elemental phosphorus under conditions that may spontaneously combust, posing a fire hazard or resultant air emissions that represent a significant risk to human health and the environment, and minimize generation and prevent exposure to phosphine and other gases at levels that represent a significant risk to human health and the environment.

The performance monitoring methods for ET caps in non-P4 areas and in areas where P4 is present or suspected to be present are similar, with ET caps in areas where P4 is or is suspected to be present subject to additional monitoring. ET cap monitoring will be performed through routine inspections and routine measurements/surveys. Additionally, contingent monitoring metrics have been added to the PSVP for ET caps to be followed in the event of a 25-year, 24-hour storm or a seismic event. The performance monitoring strategies and approaches for these caps are summarized in Tables 2.1 and 2.2, and are described briefly in the following subsections.

For purposes of ET cap monitoring, the ET cap surfaces will be segregated into discrete surface areas (as shown on Figure 3-1) defined as:

- RA-B;
- RA-C East;
- RA-C West;
- RA-D East;
- RA-D West;
- RA-E North;
- RA-E South;
- RA-F1;
- RA-F2;
- RA-H East;
- RA-H West; and
- RA-K.

3.1.1 Performance Monitoring for ET Caps in Non-P4 Remedial Areas

The performance monitoring for ET caps in non-P4 areas are summarized in Table 2.1. The post-remedial monitoring and maintenance elements shown in Table 2.1 apply to ET caps over areas RA-D, RA-E, and RA-H that do not contain P4 (see Figure 3-1). An ET cover system relies on the hydraulic properties of the cover material (cap soil layer) to store water in the cap soil pore space for subsequent evaporation and transpiration by vegetation growing on the cover. Therefore, the monitoring of cap soil thickness, stormwater or wind soil erosion, rodent damage, and vegetative cover on the cap are all important.

The stated performance standard for ET caps is the successful implementation of the final design, which will be evaluated by the following monitoring:

1. Routine annual or semi-annual inspection of cap topsoil depth indicators; signs of stormwater erosion/damage, signs of rodent and/or insect damage, and stormwater diversion controls.

2. Contingent monitoring for erosion/damage to the cap or stormwater diversion controls to be implemented within seven days after a 25-year, 24-hour storm or a seismic event.

3. Routine annual measurements of topsoil depth using depth indicators and an annual vegetation survey.

The unacceptable conditions (action triggers) for each of these monitoring activities are summarized in Table 2.1 along with the associated response action. These activities are discussed in more detail below.

ET Cap Topsoil Depth Monitoring: Annually inspect the ET cap topsoil depth indicators to determine if the indicators are damaged, missing, or obscured by topsoil. Topsoil depth indicators will typically be placed at areas on the ET cap most susceptible to wind and water erosion, i.e., on the cap crowns, ridges, and side-slopes. Typical density for placement of topsoil depth indicators will be one (1) per three (3) acres. Any damaged or missing topsoil depth indicator will be replaced as soon as practicable (i.e., commence repairs within 7 days except if frozen soil/snow cover/muddy conditions exist such that the cap surface could be damaged during implementation or repairs are not feasible due to ground conditions). All required repairs will be summarized and reported annually.

Annually take a measure of the depth of topsoil at each topsoil depth indicator. If 50% of the topsoil indicators in a designated area have topsoil loss of greater than 2 inches, then maintenance activity (i.e., addition of new topsoil and re-seeding) will be necessary for that area. All required repairs will be summarized and reported annually.

Routine Stormwater/Snowmelt Run-On/Run-Off Damage Monitoring: Semi-annually inspect the ET cap surface for stormwater/snowmelt run-on/run-off damage. This will be performed after the spring snowmelt (in April or May) which usually produces peak runoff for the year and in the

fall (September or October) after the peak thunderstorm season is over. This monitoring will involve visually inspecting the entire cap surface to determine if there is evidence of excessive erosion from runoff or significant deposition of sediment (run-on). Any significant erosion will be repaired (filled in with topsoil) and/or accumulated sediment will be removed as soon as practicable (i.e., commence repairs within 7 days except if frozen soil/snow cover/muddy conditions exist such that the cap surface could be damaged during implementation or repairs are not feasible due to ground conditions). All required repairs will be summarized and reported annually.

Semi-annually inspect the designed ET cap stormwater conveyance ditches and/or diversion berms for signs of excessive erosion, deposition of sediments, accumulation of debris, or other indications that the stormwater management system design on the ET cap may be compromised. This will be performed after the spring snowmelt (in April or May) and in the fall (September or October). This inspection will involve examining designed stormwater conveyances/diversions to determine if the stormwater management design is functioning as planned. Any significant erosion will be repaired (filled in with topsoil) and/or accumulated sediment/debris will be removed as soon as practicable (i.e., commence repairs within 7 days except if frozen soil/snow cover/muddy conditions exist such that the cap surface could be damaged during implementation or repairs are not feasible due to ground conditions). All required repairs will be summarized and reported annually.

Contingent Stormwater/Snowmelt Run-On/Run-Off Damage Monitoring: Within seven (7) days of a 25-year, 24-hour storm event or a seismic event, inspect the cap surface for stormwater run-on/run-off damage. A triggering 25-year, 24-hour storm event is defined as 2.1 inches (or more) of precipitation within a 24 hour period (NOAA, 1973) as reported for the Pocatello airport weather station. A triggering seismic event is defined as an event that (1) exceeds a magnitude 5.0 on the Richter Scale with an epicenter within a 20-mile radius as reported by USGS or (2) exceeds a magnitude 6.0 on the Richter Scale with an epicenter within a 50-mile radius as reported by USGS. This monitoring will involve visually inspecting the entire cap surface to determine if there is evidence of excessive erosion from runoff or significant deposition of sediment (run-on). This monitoring will also inspect the designed stormwater stormwater conveyance ditches and diversion berms for signs of excessive erosion, deposition of sediments, accumulation of debris, or other indications that the stormwater management system design may be compromised. Any significant erosion will be repaired (filled in with topsoil) and/or accumulated sediment will be removed as soon as practicable (i.e., commence repairs within 7 days except if frozen soil/snow cover/muddy conditions exist such that the cap surface could be damaged during implementation or repairs are not feasible due to ground conditions). All required repairs will be summarized and reported annually.

Rodent/Insect Damage Monitoring: Semi-annually inspect the ET cap surface for rodent and/or insect damage. This will be performed in late spring (April or May) and again in the fall (September or October) each year. This monitoring will involve visually inspecting the entire cap surface to determine if there is evidence of excessive rodent/insect damage. Rodent damage will be evident by mounds of soil on the cap surface indicating rodent digging/tunneling under the cap surface. Insect damage will be evident by areas of distressed or absent vegetation indicating excessive insect feeding on the cap plants. Any significant damage to the cap by

burrowing rodents will be repaired (filled in with topsoil) as soon as practicable (i.e., commence repairs within 7 days except if frozen soil/snow cover/muddy conditions exist such that the cap surface could be damaged during implementation or repairs are not feasible due to ground conditions). If rodent damage is widespread, a rodent trapping/poisoning program will be initiated as soon as conditions permit, typically during spring, summer or fall months. Any significant damage to cap vegetation will be assessed for potential action (e.g., spraying insecticides or replanting). This assessment will be made during the following growing season. All required repairs will be summarized and reported annually.

Cap Surface Vegetation Survey: Annually inspect the cap vegetation cover to ensure that significant areas do not become void of vegetation. This monitoring will typically be performed at the end of the growing season (September or October) and will involve walking a specified number of "random" transects across the cap surface making visual inspections as well as "sampling" ten (10) representative areas (9 ft2 plots) along the transect. The number of viable plants will be counted within each plot to determine the "plant density". If 33% or more of the transect plots in a designated area have a "plant density" less than 0.5 plants per square foot, then maintenance activity (i.e., re-seeding) will be necessary for that area. All required repairs will be summarized and reported annually.

3.1.2 Performance Monitoring for ET Caps in P4 Remedial Areas

The performance monitoring for ET caps in areas with P4 is summarized in Table 2.2. The post-remedial monitoring and maintenance elements shown in Table 2.2 apply to ET caps over areas RA-B, RA-C, RA-K, RA-F1, and RA-F2 where elemental phosphorous may exist (see Figure 3-1). The stated performance standard for ET caps is the successful implementation of the final design, which will be evaluated by the same performance standards and metrics listed above for non-P4 areas, with the addition of the following monitoring elements:

- Monitoring one settlement monument that will be re-established for the Slag Pit Sump at the same planar coordinates and at the elevation of the ground surface level of the ET cap at that location within RA-B; and

- Monitoring for phosphine gas (PH3) within the capillary break layer (and above the surface of the cap, if triggered) and soil chemistry changes due to potential decomposition of phosphine within the soil (if triggered).

The unacceptable conditions (action triggers) for each of these monitoring activities are summarized in Table2.2 along with the associated response action. These monitoring activities are discussed in more detail above (for monitoring activities that are the same as those for ET caps in non-P4 remedial areas) and below (for monitoring activities that are unique to ET caps in P4 remedial areas).

Slag Pit Sump ET Cap Settlement Monitoring: The slag pit sump is incorporated into the ET cap within RA-B. The objective of the cap settlement monitoring program at the slag pit sump is to determine if excessive settlement or movement of slag pit sump cap materials of construction is taking place. The inspection/monitoring for the slag pit sump (in addition to the other inspections/monitoring associated with the ET cap on RA-B) include:

- Annually inspect the slag pit sump settlement monument to determine if the settlement monument is clear, accessible, and undamaged during the displacement measurement surveys described below. Any damaged or missing settlement monuments will be replaced as soon as practicable (i.e., commence repairs within 7 days except if frozen soil/snow cover/muddy conditions exist such that the cap surface could be damaged during implementation or repairs are not feasible due to ground conditions). All required repairs will be summarized and reported annually.

- Annually survey the elevation and coordinates of the slag pit sump settlement monument to determine the vertical and horizontal components of the final slag pit cover monument. Elevation and displacement measurements will be plotted cumulatively versus time. The time scale will be in logarithm of time or square root of time. The settlement curve will be kept up to date with each reading.

- The area around the slag pit sump will also be checked for visible subsidence during run-on and/or run-off erosion monitoring or other monitoring and/or maintenance in the area and also after local seismic events. The criteria for visible subsidence requiring settlement monitoring has been established as an area of 100 square feet (a 10 foot by 10 foot or 11 foot diameter area) or greater where precipitation ponding is observed or could occur to a depth of 1 inch of water or greater. A triggering seismic event is defined as an event that (1) exceeds a magnitude 5.0 on the Richter Scale with an epicenter within a 20-mile radius as reported by USGS or (2) exceeds a magnitude 6.0 on the Richter Scale with an epicenter within a 50-mile radius as reported by USGS.

ET Cap PH3 and Topsoil Chemistry Monitoring. While the CERCLA areas are not expected to have significant accumulation and/or concentration of PH3 under the ET cap, semi-annual monitoring for will be performed at ET caps where P4 is known or suspected of being present. The initial monitoring will be performed within the capillary break layer of the ET cap (see Figure 3-2 for the soil gas probe design) where PH3 would be most likely to accumulate. If PH3 is detected within the capillary break layer at or above the action limit of 0.05 ppm PH3, then additional monitoring would be triggered as indicated on the PH3 monitoring decision flowchart presented on Figure 3-3 and indicated below:

- First, the soil gas monitoring location exceeding the action level will be measured again within five (5) business days to confirm the exceedance. This confirmation monitoring is appropriate as there are several know interferences (i.e., engine exhaust, sulfur oxides, etc.) which can give a false positive reading on the PH3 monitor.
- If the confirmation measurement of the soil gas probe remains above the action level, then additional monitoring would be performed to determine if PH3 gas is escaping the ET cap into the ambient air. This additional ambient air monitoring would involve taking Industrial Hygiene (IH) ambient air measurements (4 feet above the ground surface) at and around the soil gas probe, performing a surface scan over the area, and taking ambient air measurements in nearby low-lying areas (if nearby low-lying areas exist). These measurements would be performed using methods and equipment consistent with

the RCRA pond monitoring as described in Section 4.0. If any of these ambient air measurement exceed action limits, the following actions will be triggered:

- First, if any of the ambient air monitoring equals or exceeds 1.0 ppm, fenceline monitoring will be initiated within 15 minutes of a confirmed PH3 detection at or above 1.0 ppm. The fenceline monitoring (per the RCRA Pond UAO Air Monitoring Plan) would be performed using methods and equipment consistent with the RCRA pond monitoring.
- If any ambient air monitoring exceeds an action level of 0.05 ppm PH3 (but is less than 1.0 ppm PH3), the ambient air monitoring will be re-measured within 2 hours to confirm the initial result.
- If the confirmation measurement of the ambient air remains above the action level, then an enhanced PH3 monitoring program would be proposed to EPA for that CERCLA area.

- Also, if the confirmation measurement of the soil gas probe remains above the action level, then monitoring of critical ET cap soil properties will be performed. Samples of the ET cap soil (top 12 inches) would be monitored for soil pH in the immediate area of the soil gas probe with the exceedance. These soil pH results would be compared to the baseline soil pH as reported in *Remedial Design Data Gap Report for the FMC Plant OU – January 2014* to determine if the pH is being significantly altered. If the measured soil pH is outside the range of 5.0 to 9.0, then soil density measurements will be made in the same area. Soil densities in the same area (to a depth of 24 inches) would be measured and compared to the soil density specifications of the RD. If measured soil density is outside the range of 80% of maximum dry density to 90% of maximum dry density, a work plan will be developed and submitted to EPA proposing further action(s) to evaluate the changes in the soil properties

3.2 CAP INTEGRITY MONITORING FOR GAMMA CAPS

The performance monitoring for gamma are summarized in Table 2.3. The post-remedial monitoring and maintenance elements shown in Table 2.3 apply to gamma caps over areas RA-A, RA-F, and RA-G (see Figure 3-1).

The stated performance standard for gamma caps is the successful implementation of the final design, which will be evaluated by the following monitoring:

1. Routine annual or semi-annual inspection for signs of erosion, rodent and insect damage, and/or stormwater conveyance/diversion controls.

2. Contingent monitoring for erosion/damage to the cap or stormwater diversion controls to be implemented within seven days after a 25-year, 24-hour storm or a seismic event.

3. Routine measurements consisting of gamma emission surveys/measurements to evaluate achievement of the radium-226 soil cleanup level. FMC prepared a revised GCWPA (Revision 1) for submittal to EPA on December 12, 2012. Field work is scheduled to be conducted in March 2015 pending EPA approval of the revised GCWPA and contingent

on acceptable weather and surface conditions. Frequency, action triggers and response actions will be based on the gamma emission survey method to be developed/detailed after completion of gamma cap addendum study.

The unacceptable conditions (action triggers) for each of these monitoring activities are summarized in Table 2.3 along with the associated response action. These activities are discussed in more detail below.

Routine Stormwater/Snowmelt Run-On/Run-Off Damage Monitoring: Semi-annually inspect the gamma cap surface for stormwater/snowmelt run-on/run-off damage. This will be performed after the spring snowmelt (in April or May) which usually produces peak runoff for the year and in the fall (September or October) after the peak thunderstorm season is over. This monitoring will involve visually inspecting the entire cap surface to determine if there is evidence of excessive erosion from runoff or significant deposition of sediment (run-on). Any significant erosion will be repaired (filled in with topsoil) and/or accumulated sediment will be removed as soon as practicable (i.e., commence repairs within 7 days except if frozen soil/snow cover/muddy conditions exist such that the cap surface could be damaged during implementation or repairs are not feasible due to ground conditions). All required repairs will be summarized and reported annually.

Semi-annually inspect the designed gamma cap stormwater conveyance ditches and/or diversion berms for signs of excessive erosion, deposition of sediments, accumulation of debris, or other indications that the stormwater management system design on the gamma cap may be compromised. This will be performed after the spring snowmelt (in April or May) and in the fall (September or October). This inspection will involve examining designed stormwater conveyances/diversions to determine if the stormwater management design is functioning as planned. Any significant erosion will be repaired (filled in with topsoil) and/or accumulated sediment/debris will be removed as soon as practicable (i.e., commence repairs within 7 days except if frozen soil/snow cover/muddy conditions exist such that the cap surface could be damaged during implementation or repairs are not feasible due to ground conditions). All required repairs will be summarized and reported annually.

Contingent Stormwater/Snowmelt Run-On/Run-Off Damage Monitoring: Within seven (7) days of a 25-year, 24-hour storm event or a seismic event, inspect the cap surface for stormwater run-on/run-off damage. A triggering 25-year, 24-hour storm event is defined as 2.1 inches (or more) of precipitation within a 24 hour period (NOAA, 1973) as reported for the Pocatello airport weather station. A triggering seismic event is defined as an event that (1) exceeds a magnitude 5.0 on the Richter Scale with an epicenter within a 20-mile radius as reported by USGS or (2) exceeds a magnitude 6.0 on the Richter Scale with an epicenter within a 50-mile radius as reported by USGS. This monitoring will involve visually inspecting the entire cap surface to determine if there is evidence of excessive erosion from runoff or significant deposition of sediment (run-on). This monitoring will also inspect the designed stormwater stormwater conveyance ditches and diversion berms for signs of excessive erosion, deposition of sediments, accumulation of debris, or other indications that the stormwater management system design may be compromised. Any significant erosion will be repaired (filled in with topsoil) and/or accumulated sediment will be removed as soon as practicable (i.e., commence repairs within 7

days except if frozen soil/snow cover/muddy conditions exist such that the cap surface could be damaged during implementation or repairs are not feasible due to ground conditions). All required repairs will be summarized and reported annually.

Rodent/Insect Damage Monitoring: Semi-annually inspect the gamma cap surface for rodent and/or insect damage. This will be performed in late spring (April or May) and again in the fall (September or October) each year. This monitoring will involve visually inspecting the entire cap surface to determine if there is evidence of excessive rodent/insect damage. Rodent damage will be evident by mounds of soil on the cap surface indicating rodent digging/tunneling under the cap surface. Insect damage will be evident by areas of distressed or absent vegetation indicating excessive insect feeding on the cap plants. Any significant damage to the cap by burrowing rodents will be repaired (filled in with topsoil) as soon as practicable (i.e., commence repairs within 7 days except if frozen soil/snow cover/muddy conditions exist such that the cap surface could be damaged during implementation or repairs are not feasible due to ground conditions). If rodent damage is widespread, a rodent trapping/poisoning program will be initiated as soon as conditions permit, typically during spring, summer or fall months. Any significant damage to cap vegetation will be assessed for potential action (e.g., spraying insecticides or replanting). This assessment will be made during the following growing season. All required repairs will be summarized and reported annually.

Gamma Cap Gamma Radiation Survey: To be developed/detailed after completion of the gamma cap addendum study to be performed in the spring of 2015

3.3 SITE-WIDE STORMWATER MANAGEMENT SYSTEM MONITORING

Post-remedy performance monitoring for site-wide stormwater runoff will be performed through routine inspections and inspections after storm events (25-year storm, 24-hour storm). The performance monitoring strategies for site-wide stormwater runoff are summarized in Table 2.4. The objectives of the site-wide stormwater management are to: 1) implement a site-wide stormwater capture, conveyance and detention system that minimizes erosion and diverts water from the planned ET and gamma covers and existing capped areas, and 2) integrate the stormwater management system and grading plans with the existing and planned caps, access roads, infrastructure and monitoring systems.

Site-wide stormwater runoff controls will be evaluated with the following monitoring (see Table 2.4):

1. Routine semi-annual inspection of stormwater runoff management infrastructure including diversion controls and detention ponds.

2. Contingent monitoring for erosion/damage to stormwater runoff management infrastructure to be implemented within seven days after a 25-year, 24-hour storm or a seismic event.

The unacceptable condition (action trigger) for each of these monitoring activities is verified damage as identified by the visual inspections. The associated response action for identified

damage is to repair the damage within 7 days as conditions permit (see Table 2.4). These monitoring activities are discussed in more detail below.

Routine Stormwater/Snowmelt Run-On/Run-Off Damage Monitoring: Semi-annually inspect the designed stormwater runoff management systems, i.e., conveyance ditches, diversion berms, and retention ponds for signs of excessive erosion, deposition of sediments, accumulation of debris, or other indications that the stormwater management system design may be compromised. This will be performed after the spring snowmelt (in April or May) and in the fall (September or October). This inspection will involve examining designed stormwater conveyances/diversions to determine if the stormwater management design is functioning as planned. Any significant erosion will be repaired (filled in with topsoil) and/or accumulated sediment/debris will be removed as soon as practicable (i.e., commence repairs within 7 days except if frozen soil/snow cover/muddy conditions exist such that the cap surface could be damaged during implementation or repairs are not feasible due to ground conditions). All required repairs will be summarized and reported annually.

Contingent Stormwater/Snowmelt Run-On/Run-Off Damage Monitoring: Within seven (7) days of a 25-year, 24-hour storm event, inspect all of the site-wide stormwater runoff management systems for stormwater run-on/run-off damage. A triggering 25-year, 24-hour storm event is defined as 2.1 inches (or more) of precipitation within a 24 hour period (NOAA, 1973) as reported for the Pocatello airport weather station. This monitoring will involve visually inspecting stormwater conveyances, diversion berms, and retention ponds to determine if there is evidence of excessive erosion from runoff or significant deposition of sediment (run-on) or other indications that the stormwater management system design may be compromised. Any significant erosion will be repaired (filled in with topsoil) and/or accumulated sediment will be removed as soon as practicable (i.e., commence repairs within 7 days except if frozen soil/snow cover/muddy conditions exist such that the cap surface could be damaged during implementation or repairs are not feasible due to ground conditions). All required repairs will be summarized and reported annually.

3.4 SITE SECURITY MONITORING

The post-remedial monitoring and maintenance elements shown in Table 2.5 apply to the site-wide infrastructure consisting of fencing, gates, and signage. The stated performance standard for site-wide security is that the site security systems will be installed and maintained to minimize unauthorized entry onto the FMC plant site. Site-wide security systems will be evaluated with the following monitoring activities (see Table 2.5):

1. Routine semi-annual inspection of site-wide security infrastructure including fences, gates, and signage.

2. Review of security breaches to evaluate the need for security system improvements.

The unacceptable conditions (action triggers) for each of these monitoring activities are summarized in Table 2.5 along with the associated response action. These monitoring activities are discussed in more detail below:

Site Security Monitoring: Semi-annually inspect the site security systems, i.e., fences, gates, and signage for signs to 1) verify that the perimeter fencing around the FMC Plant Site is in place and in good repair, 2) verify that the gates are closed and locked, except when workers are present within the fenced area, 3) verify that signage is in place and legible, and 4) determine whether there is any evidence of unauthorized entry or attempted entry into the fenced FMC Plant Site. Any issues requiring attention or maintenance on the security systems are to be noted on inspection forms. All required repairs will be summarized and reported annually.

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DRAWN BY D. Severson

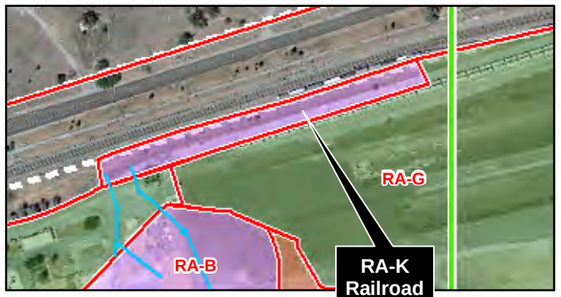
9 Jan 2015

I:\projects\FMCIdahoIFMC_OM_M PLANIFIGURESIFig 3-1_ET Cap Surf Des for Monitoring_Jan2015.mxd

Legend

- Remediation Area (RA) Surface
- Property Boundary
- Gamma Cap Surface
- ET Cap (non-P4 RA) Surface
- ET Cap (P4 RA) Surface
- RCRA Cap
- Calciner Pond Cap
- PROCESS PIPING
  - CO line with P4
  - Phossy H_2O
  - Precipitator slurry
- Storm sewer drain with phossy H_2O

DETAIL A RA-K Railroad Swale



FORT HALL RESERVATION EASTERN BOUNDARY

SEE DETAIL A

Clean Landfill Area

RA-I

RA-J

RA-K

RA-G North

RA-G South

RA-A

RA-B

RA-C East

RA-C West

RA-D West

RA-D East

RA-E North

RA-E South

RA-F1

RA-F2

RA-H East

RA-H West

WMU #9 POND 9E

WMU #10 (POND 16S)

WMU #15 POND 18 CELL A

WMU #14 POND 17

WMU #3 POND 15S

WMU #8 PHASE IV PONDS

WMU #7 POND 8S

WMU #11 POND 8E

Calciner Ponds

WESTERN UNDEVELOPED AREA

SOUTHERN UNDEVELOPED AREA

N

W E

S

0 450 900

Feet

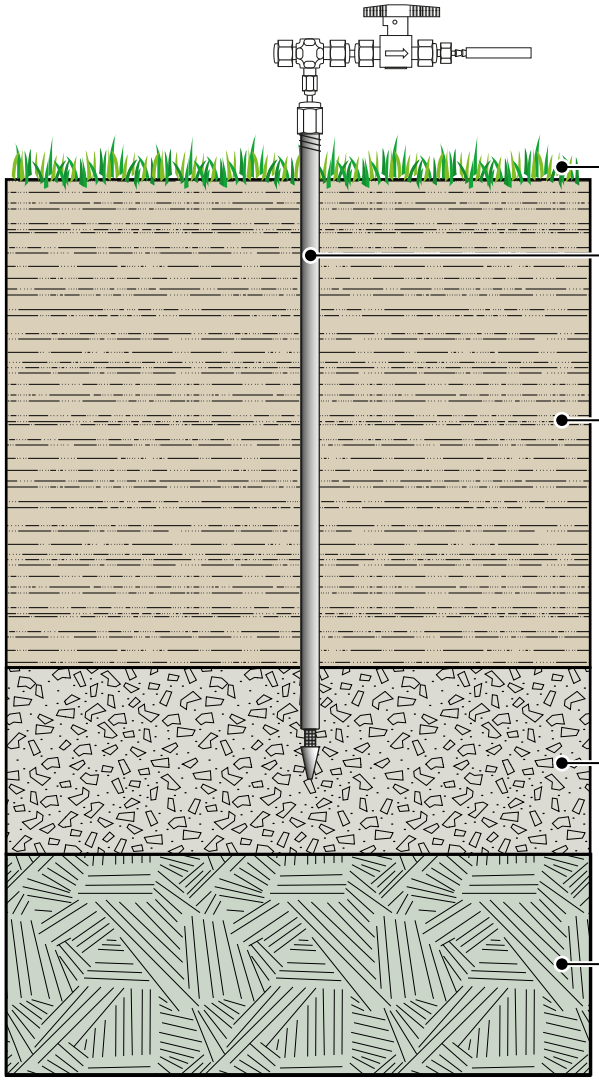
MWH

FMC

DRAFT FIELD SAMPLING PLAN

FIGURE 3-1

ET CAP SURFACE DESIGNATIONS FOR MONITORING



NOT TO SCALE

MWH

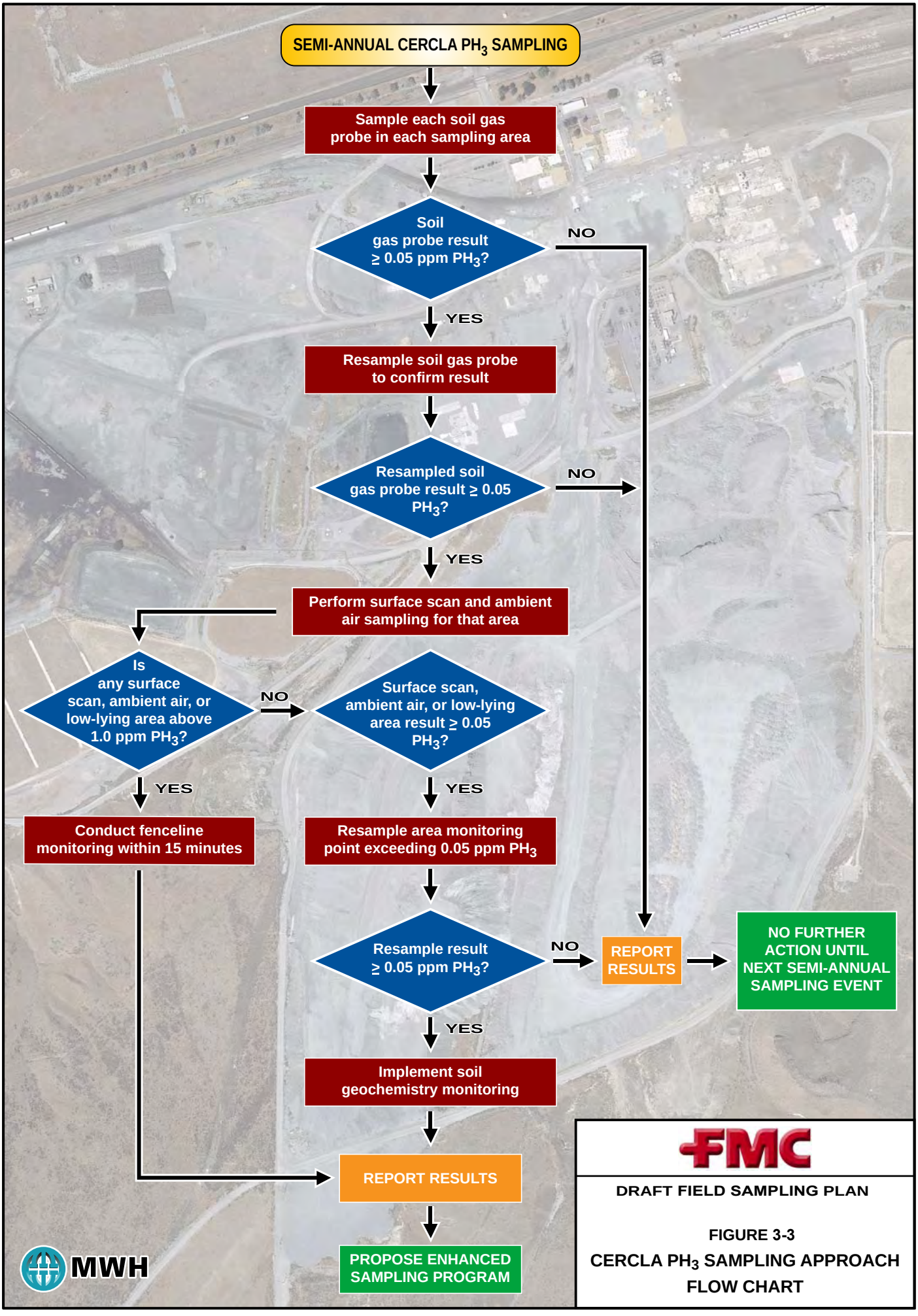
FMC

DRAFT FIELD SAMPLING PLAN

FIGURE 3-2

ANTICIPATED ET CAP

SOIL GAS PROBE DESIGN



DRAWN BY D. Severson

6 Jan 2015

I:\projects\FMCidaho\FMC_DRAFTFINAL_Perf Stand Verif Plan\FIGURES\Fig 4_FMC_CERCLA PH3 Sampling Approach Flow Chart_Jan2015.ai

4.0 MONITORING PROCEDURES

This section describes the procedures to be used to perform the CERCLA post-remedial action monitoring and record results. All monitoring will be conducted in accordance with the procedures presented in this section and associated attachments.

Each of the monitoring procedures in this section prescribes the method of observing and documenting variances to acceptable conditions at the FMC Plant Site on a routine basis. In addition to the post-closure monitoring and maintenance activities described in this section, all FMC and FMC contractor personnel working on the FMC Plant Site will be responsible for reporting to FMC any observations of conditions that are or reasonably may represent an unacceptable condition at any time. FMC will be responsible for recording the reported condition, assessing the condition based on the requirements of this plan and performing any necessary maintenance to correct unacceptable conditions.

4.1 FIELD DOCUMENTATION

4.1.1 Field Inspection and Maintenance Forms

Field inspection and maintenance forms will document information/data obtained in the field as well as maintenance activities. Field form entries will be complete and accurate enough to permit reconstruction of field activities. At a minimum, the following monitoring information will be recorded:

- Monitoring location and description.
- Monitor/Inspector's name(s).
- Date and time of inspection and monitoring.
- Type of monitoring equipment used.
- Measurement data (e.g. soil thickness). The data will include the numerical value and the units of each measurement.
- Field observations and details important to interpreting the monitoring results (e.g., heavy rains, odors, colors).
- Issues that require maintenance attention.
- Any other observation relevant to a potential threat to cap integrity.

The date(s) of monitoring (monitoring period) will be indicated in mm/dd/yy format, and the time will be indicated in accordance with the military convention. The monitored parameter will be indicated in an unambiguous shorthand.

Each form will be dated and the time of entry noted in military time. All entries will be legible, written in black, waterproof ink, and signed by the individual making the entries. The person recording the notes will sign and date the bottom of every page. Changes will be crossed out with a single line so that the original text remains legible; the change will be initialed and dated. Language will be factual, objective, and free of personal opinions or inappropriate terminology.

4.1.2 Photographs

In addition to written records, photographs also may be taken as necessary to supplement written descriptions of field activities entered on inspection and maintenance forms.

4.2 SAMPLE LABELING, CHAIN-OF-CUSTODY, HANDLING, AND SHIPPING

While the CERCLA post-remedial action monitoring activities do not routinely involve sampling and laboratory analysis, there are occasions when waste determination sampling may be required to be performed. In these cases of non-routine sampling, the following sample handling procedures will apply.

Sample Labeling: A label will be placed on each sample container submitted for analysis and will include the following information:

- Project name and location
- Sample designation
- Date and time of sample collection
- Preservative (if applicable)
- Sampler's initials
- Requested analyses.

Sample Chain-of-Custody: A chain-of-custody form will be completed and will accompany each sample cooler submitted to the laboratory. This form includes project identification, project location, sample designation, and analysis type. In addition, there are spaces for entry of the sample collection date and time, signatures of the persons relinquishing and receiving samples, and the conditions of the samples upon receipt by the laboratory.

Sample Handling and Shipping: After collection of each sample, the sample container will be placed in a cool dry place pending delivery to the laboratory (e.g., a sturdy cardboard box or plastic cooler).

Because none of the waste determination analyses anticipated for waste determination have short holding times, samples will be delivered to the laboratory either by the sampling team or by carrier (e.g., FedEx, UPS), at the discretion of the sampling team. If samples are to be delivered

to the laboratory on a Saturday or Sunday, the laboratory will be contacted to arrange for sample acceptance.

4.3 ET CAP INTEGRITY MONITORING PROCEDURES AT RAS WITHOUT P4

The ET cap integrity monitoring procedures for RAs without P4 will be performed on ET caps in RA-D, RA-E and RA-H. These procedures are described in the following subsections.

4.3.1 ET Cap Surface Vegetation Monitoring Procedures

The ET cap vegetation cover surveys will be performed annually on the surface of each of the ET cap designated monitoring surface areas (see Figure 3-1). The purpose of the vegetation monitoring is to visually inspect the ET cap surface that includes the external cap slopes to determine if areas void of vegetation are developing. Therefore, the vegetation cover survey will be performed in the fall at the end of the growing season (typically in September just prior to re-seeding, if required). All ET caps will be inspected following the methodology described in *Guidelines for Determining Stand Establishment on Pasture, Range and Conservation Seedings* (USDA, January 2008).

Using the inspection form, the inspector will perform the following at on the surface of each ET cap designated monitoring surface area:

- Record the date, time, inspector's name on the form and sign the form.
- Establish three transects across the surface of the ET pond cap designated monitoring surface area. Each transect will have: 1) a random origin, 2) a random direction, and 3) have a different origin than any of the transects used during the previous vegetation monitoring event. Document the approximate location and direction of each of the three transects on the inspection form.
- For each transect, walk across the pond cap surface from one side to the opposite side and appraise the variability of the vegetation. On the way back, sample representative areas ('plots') of the cap surface using a pace transect. A square frame will be used to count plants within each plot. The frame will be placed so all four sides touch the ground surface (e.g., do not set plot frame edge directly on top of a bunch grass or sage brush).
- Record the number of three-leaved (or more) plants (e.g., grasses, shrubs) in a 9 square foot plot (i.e., within a 3-foot square frame placed on the ground); walk an appropriate number of paces such that the ten sampling plots will be uniformly spaced across the transect (e.g., ten paces [about 30 feet] between each plot for a 330 foot transect) and record again; repeat counting plots until 10 stops have been made. Divide the total number of plants counted by 9 to calculate the number of plants per square foot at each plot / sample (i.e., calculate plant density for each individual 9 square foot plot).
- Complete three transects and 10-stop plots / samples per transect. Transects will be as evenly spaced as practicable across the designated monitoring surface area but should also be randomly selected for each monitoring event.

- Also note any ponding of accumulated precipitation, erosion channels, or evidence of rodent/insect activity that may impact vegetation cover. Any of these areas requiring maintenance will be entered on the maintenance form. Record the date entered on the maintenance form.
- When completed, the plant density will have been counted at and calculated for each of the 30 individual plots. If two-thirds (20 of 30) of the plot samples or more from the 30 total samples from the three transects and 10 samples per transect meet or exceed the minimum target density of 0.5 plants per square foot, then maintenance is not required.
- If less than two-thirds of the total 30 samples meet or exceed the minimum target density of 0.5 plants per square foot, then the cap vegetation will require maintenance and will be entered onto the maintenance form. Record the date entered on the maintenance form. Cap vegetation will typically involve reseeding the areas of poor coverage based on specific transect / plot locations that were below the target density using the vegetation seed mix specified in Table 5.3 of the *Remedial Design Report* (MWH, 2014). . Reseeding will be performed in the fall (typically in October). In areas where reseeding does not result in established vegetation on areas with continued erosion problems, primarily on the steeper external pond cap slopes, erosio*n mats may be placed to hel*p establish vegetation and minimize erosion. Following completion of maintenance and/or re-seeding, confirmation of completion of repairs will be documented on the maintenance form.

In the event that the vegetation coverage fails to meet the performance standard (two-thirds of the plot samples (67%) or more from the aggregate three transects and 10 samples per transect [30 total samples] meet or exceed the minimum target density of 0.5 *p*lants per square foot) for two (2) consecutive years following the first reseeding performed due to a failure to meet the performance standard, FMC will prepare a plan including a schedule for an investigation to determine the cause and recommended actions to reestablish a vegetation cover that meets the performance standard. The plan and schedule will be submitted to the EPA prior to implementation of the investigation.

4.3.2 ET Cap Topsoil Depth Monitoring Procedures

The ET cap topsoil depth monitoring will be performed on the surface of each of the ET cap designated monitoring surface areas (see Figure 3-1) semiannually. Using the *inspection form*, the inspector will perform the following at each of the ET cap designated monitoring surface areas:

- Record the date, time, inspector's name on the form and sign the form.
- Using a tape measure or other measuring device, measure the depth from the scribed reference line to the topsoil surface. Record the measurement on the form.
- Determine the topsoil loss as the difference between the installed topsoil level (original level as indicated on the form) and the current topsoil level (as measured). Record the difference (topsoil loss).

- Record any unacceptable conditions (e.g., missing or damaged topsoil depth indicators) requiring maintenance and enter on the maintenance form. Record the date entered on the maintenance form.
- Any maintenance necessary to clear access to or repair topsoil depth indicators will be performed as soon as practicable so as not to cause any delay for the next scheduled monitoring event. Confirmation of completion of repairs will be documented on the maintenance form.
- If the topsoil measurement shows 5 inches of loss below the installed thickness at 50-percent of the indicators on the of the ET cap designated monitoring surface areas, the total cap area will be evaluated within 30 days. The entire ET cap surface will be surveyed to prepare a current cap surface elevation contour map. The current surface elevations will be compared to the final as-built final cap elevations documented in the remedial action "as-built" drawings. If more than 50-percent of the cap surface shows 5 inches of loss below the as-built surface, maintenance (e.g., replacement of topsoil and reseeding) will be performed as soon as practicable. Topsoil replacement will not be performed if frozen soil / snow cover / highly muddy conditions exist (typically between November 15 through April 15) at the ET cap where topsoil replacement is required, but, if delayed by surface conditions topsoil replacement will commence within seven (7) days of the presence of acceptable cap surface conditions. Commencement of repairs and/or maintenance means starting field work for simple or minor maintenance, or initiation of engineering, planning and/or procurement of additional materials to perform the maintenance and/or repairs for more complex or larger scale maintenance. As stated in Section 4.3.1 of this FSP, any reseeding required following topsoil replacement will be performed in the fall (typically in October).

All necessary repairs to the cap surface will be performed by FMC in accordance with the procedures as specified in the final ET cap design construction specifications, including any testing and inspections as required by the final cover CQA Plan. Documentation of all repairs to the cap surface will be maintained in the Operating Record.

4.3.3 ET Cap Stormwater/Snowmelt Runoff Monitoring Procedures

The cap stormwater/snowmelt runoff monitoring will be performed (1) semi-annually, and (2) within 48 hours of a 25-year, 24-hour storm event defined as 2.1 inches (or more) of precipitation within a 24 hour period (NOAA, 1973) as reported for the Pocatello airport weather station. The objective of these visual inspections will be to determine if cap surface erosion, sedimentation, or ponding has occurred. The criteria for localized erosion or ponding requiring maintenance has been established as an area of 100 square feet (a 10 foot by 10 foot or 11 foot diameter area) or greater where precipitation ponding is observed or could occur to a depth of 1 inch of water or greater. Stormwater/snowmelt diversionary/accumulation systems are inspected to note and remove debris, sediment, or other obstructions. As the stormwater/snowmelt runoff monitoring requires that the surface of the cap and the associated diversionary structures are visible, this monitoring cannot be performed if the cap is snow-covered. If snow-covered, the stormwater/snowmelt runoff monitoring will be re-scheduled when conditions permit inspection.

Using the inspection form, the inspector will perform the following at each of the ET cap designated monitoring surface areas (see Figure 3-1):

- Record the date, time, inspector's name on the form and sign the form.
- Walk or drive around the outside of the ET cap perimeter. Note any evidence of sheet erosion or erosion channels (rills). In areas where erosion mats have been placed, check the condition of the cap surface and erosion mats to determine if one or more mats need to be replaced.
- Walk over the entire surface of the of the ET cap designated monitoring surface areas. Note any evidence of sheet erosion or erosion channels. In areas where erosion mats have been placed, check the condition of the cap surface and erosion mats to determine if one or more mats need to be replaced.
- Note any ponding of accumulated precipitation particularly areas of 100 square feet (a 10 foot by 10 foot or 11 foot diameter area) or greater where precipitation ponding is observed or could occur to a depth of 1 inch of water or greater, erosion channels, or evidence of rodent activity that, in the judgment of the inspector, could reasonably be expected to result in soil erosion per run-off erosion that could compromise the integrity and functionality of the cap system.
- Inspect all associated stormwater diversionary structures (i.e., swales, ditches, accumulation areas, etc.) and note any excessive erosion or other damage and/or accumulation of sediment or debris that could impair the functionality of the diversion and drainage structures.
- Record any unacceptable conditions requiring maintenance and enter on the maintenance form. Record the date entered on the maintenance form.
- Any maintenance shown to be required based on inspection of the ET cap surface and diversion structures will be performed as soon as practicable. Maintenance or repairs to the diversion and drainage structures that could impair the functionality of the diversion and drainage structures and maintenance and/or repairs to eliminate or prevent potential ponding on the cap surface will commence within seven (7) days unless delayed as specified below. Commencement of repairs and/or maintenance means starting field work for simple or minor maintenance, or initiation of engineering, planning and/or procurement of additional materials to perform the maintenance and/or repairs for more complex or larger scale maintenance. Maintenance or repairs will not be performed if frozen soil / snow cover / muddy conditions exist such that cap surface could be damaged as a result of gaining access to implement the repair/maintenance activity or are not feasible due to frozen soil conditions (typically between November 15 through April 15) at the ET cap where maintenance/repairs are required. If maintenance or repairs are delayed by surface conditions, any repairs or maintenance will commence within seven (7) days of the presence of acceptable cap surface conditions. In the event maintenance or repairs must be delayed beyond commencement within seven (7) days for cause(s) other than frozen soil / snow cover / muddy conditions, FMC will notify EPA within 48 hours of the observation of a condition for which the maintenance/repair will be

delayed. The notification will include a description of the reason(s) for the necessary delay and a schedule for commencing the maintenance and/or repairs.

- Following completion of repairs, confirmation will be documented on the maintenance form.

4.3.4 Cap Rodent/Insect Infestation Monitoring Procedures

The cap rodent/insect monitoring will be performed semiannually. The purpose of the cap rodent/insect infestation monitoring is to inspect the ET cap surface to visually identify evidence of rodent burrowing or loss of vegetation from rodent or insect feeding. Inspections will be performed during the late spring (typically in June) and again in the fall (typically in September when burrowing rodents and insect activity has declined).

Using the inspection form, the inspector will perform the following at each of the ET cap designated monitoring surface areas (see Figure 3-1):

- Record the date, time, inspector's name on the form and sign the form.
- Walk or drive around the outside of the ET cap perimeter. Note any evidence of unusual rodent or insect activities, i.e., excessive burrowing, mounds of soil, and/or loss of vegetation that, in the judgment of the inspector, would result in poor vegetation coverage per surface vegetation monitoring or unacceptable soil erosion per run-off erosion monitoring.
- Walk over and observe the surface of the ET cap. Note any evidence of unusual rodent or insect activities, i.e., excessive burrowing, mounds of soil, and/or loss of vegetation that, in the judgment of the inspector, would result in poor vegetation coverage per surface vegetation monitoring or unacceptable soil erosion per run-off erosion monitoring.
- Record any unacceptable conditions requiring maintenance and enter on the maintenance form. Record the date entered on the maintenance form.
- Corrective actions to address rodent/insect activity, e.g., fill holes or burrows, will be performed as soon as practicable. Maintenance to fill holes or burrows will not be performed if frozen soil / snow cover / highly muddy conditions exist (typically between November 15 through April 15) at the ET cap designated monitoring surface areas where the maintenance is required, but, if delayed by surface conditions filling holes / burrows will commence within seven (7) days of the presence of acceptable cap surface conditions. Localized reseeding may be performed during spring (typically March through May) but if reseeding is required pursuant to Section 4.3.1 of this FSP, reseeding will be performed in the fall (typically in October). Burrowing or insect activity may also warrant the use of pesticides to eradicate the pest. Following completion of repairs/corrective actions, confirmation will be documented on the maintenance form.

4.4 ET CAP INTEGRITY MONITORING PROCEDURES AT RAS WITH P4

Integrity monitoring at ET caps in RAs with P4 include all of the monitoring components for ET caps in RAs without P4 as described in Section 4.3 plus the monitoring components as described in the following subsections. These additional ET cap monitoring procedures will be performed

on ET caps in RA-B, RA-C and RA-F1, RA-F2, and RA-K. These additional procedures are described in the following subsections.

4.4.1 Slag Pit Sump Settlement Monitoring Procedures

The ET cap settlement monument monitoring will be performed on the surface of the slag pit sump ET cap (1) annually; (2) if visible subsidence is noted during semiannual run-on and/or run-off erosion monitoring or other monitoring and/or maintenance; and (3) after local seismic events. The criteria for visible subsidence requiring settlement monitoring has been established as an area of 100 square feet (a 10 foot by 10 foot or 11 foot diameter area) or greater where precipitation ponding is observed or could occur to a depth of 1 inch of water or greater. A triggering seismic event is defined as an event that (1) exceeds a magnitude 5.0 on the Richter Scale with an epicenter within a 20-mile radius as reported by USGS or (2) exceeds a magnitude 6.0 on the Richter Scale with an epicenter within a 50-mile radius as reported by USGS. To monitor final cover settlement the slag pit sump ET cap, the elevation and coordinates of the monument will be surveyed to determine the vertical and horizontal components of the final cover monument. For accuracy, a surveying instrument will be used to take measurements with the following tolerances:

- Elevation readings: 0.01 foot
- Horizontal displacement: 0.1 foot

Elevation and displacement measurements will be plotted cumulatively versus time. The time scale will be in logarithm of time or square root of time. The settlement curve will be kept up to date with each reading. The displacement measurements (vertical and horizontal movements) will be made annually during the remaining post-closure period or until the total cumulative movements for the last five years are less than the following limits:

- Vertical settlement: 0.03 foot
- Horizontal movement: 0.2 foot

Displacement measurements will be made (1) at least once every five years during the post-remedial action period after the above limits are reached; (2) if visible subsidence is noted during semiannual run-on and/or run-off erosion monitoring or other monitoring and/or maintenance; and (3) after local seismic events. The criteria for visible subsidence and a triggering seismic event are defined above. Settlement monitoring will be based on control stations “94-1” and “94-4,” which are local stations in FMC’s survey control system. The coordinates for these stations were derived from the U.S. Coast & Geodetic Survey (US C&GS) Control Station MCDOUGAL-2 and BM Y-96. The vertical datum is based on the 1968 adjustment of the National Geodetic Vertical Datum of 1929 (NGVD 29) by the US C&GS.

Any damaged monument detected during post-closure inspections/measurements will be noted on the surveyor’s field log and entered on the maintenance form. Any maintenance necessary to clear access to or repair the settlement monument will be performed as soon as practicable so as not to cause any delay for the next scheduled monitoring event.

Any repairs or maintenance of the final cover necessary due to observed visible subsidence will be performed as soon as practicable so as not to cause any localized ponding of precipitation on the cap surface or if the subsidence was identified due to observed localized ponding of precipitation on the cap surface so as to eliminate the potential for future ponding of precipitation on the cap surface. An area of 100 square feet (a 10 foot by 10 foot or 11 foot diameter area) or greater where precipitation ponding is observed or could occur to a depth of 1 inch of water or greater will require maintenance as soon as practicable. Repairs and/or maintenance to eliminate or prevent potential ponding on the cap surface will commence within seven (7) days unless delayed as specified below. Commencement of repairs and/or maintenance means starting field work for simple or minor maintenance, or initiation of engineering, planning and/or procurement of additional materials to perform the maintenance and/or repairs for more complex or larger scale maintenance. Maintenance or repairs will not be performed if frozen soil / snow cover / muddy conditions exist such that cap surface could be damaged as a result of gaining access to implement the repair/maintenance activity or are not feasible due to frozen soil conditions (typically between November 15 through April 15) at the slag pit sump ET cap where maintenance/repairs are required. If maintenance or repairs are delayed by surface conditions, any repairs or maintenance will commence within seven (7) days of the presence of acceptable cap surface conditions. In the event maintenance or repairs must be delayed beyond commencement within seven (7) days for cause(s) other than frozen soil / snow cover / muddy conditions, FMC will notify EPA within 48 hours of the observation of a condition for which the maintenance/repair will be delayed. The notification will include a description of the reason(s) for the necessary delay and a schedule for commencing the maintenance and/or repairs.

All repairs to the final cover will be conducted in accordance with the final cover construction specifications, and all testing and inspections will be conducted in accordance with the final ET cap design construction specifications. Following completion of repairs, confirmation of completion of repairs will be documented on the maintenance form.

4.4.2 ET Cap PH3 Monitoring Procedures

Phosphine monitoring will be performed at ET caps in areas with P4, i.e., RA-B, RA-C, RA-K, RA-F1, and RA-F2 where elemental phosphorous may exist (see Figure 3-1). The primary monitoring involves measurement of PH3 concentrations within the ET cap capillary break layer where PH3 is most likely to accumulate. The PH3 monitoring will be progressive, depending on measured results as follows:

- PH3 will be measured within the capillary break layer at permanently-installed, designated soil gas probe locations. If any of these measurements $\geq$ 0.05 ppm PH3, the soil gas monitoring location exceeding the action level will be measured again within five (5) business days to confirm the exceedance. This confirmation measurement is appropriate as there are several know interferences (i.e., engine exhaust, sulfur oxides, etc.) which can give a false positive reading on the PH3 monitor.
- If the confirmation measurement of the soil gas probe remains above the action level, then additional monitoring will be performed to determine if PH3 gas is escaping the ET cap into the ambient air. This additional ambient air monitoring would involve taking Industrial Hygiene (IH) ambient air measurements (4 feet above the ground surface) at and around the soil gas probe, performing a surface scan over the area, and taking

ambient air measurements in nearby low-lying areas (if nearby low-lying areas exist). If any of these ambient air measurements exceed action limits, the following actions will be triggered:

- First, if any of the ambient air monitoring equals or exceeds 1.0 ppm, fenceline monitoring will be initiated within 15 minutes of a confirmed PH3 detection at or above 1.0 ppm.
- If any ambient air monitoring exceeds an action level of 0.05 ppm PH3 (but is less than 1.0 ppm PH3), the ambient air monitoring will be re-measured within 2 hours to confirm the initial result.
- If the confirmation measurement of the ambient air remains above the action level of 0.05 ppm, indicating an accumulation of PH3 in that area, then an enhanced PH3 monitoring program would be proposed to EPA for that CERCLA area.

Procedures for each of these progressive monitoring steps are presented in the following subsections.

4.4.2.1 *ET Cap Soil Gas PH3 Monitoring Procedure*

Soil Gas Probe Installation: Installation of soil gas sampling probes will be similar for all ET Cap sampling locations. The sample locations for the ET caps is based upon judgmental selection and historical PH3 sampling performed during the SRI Field Modification #15 as reported in *Site-Wide Gas Assessment Report for the FMC Plant OU – December 2010*. For purposes of monitoring, ET cap surfaces will be segregated into discrete surface areas (as shown on Figure 3-1). The sample locations (locations of the permanent soil gas sampling probes) for each of these discrete surface areas are shown on Figures 4-1 through 4-5. The soil gas probes will be installed into the slag capillary break layer as shown in Figure 3-2 (typically to a depth of 36 inches below cap surface). The soil gas probes (¼-inch diameter stainless steel tubing) will be slightly raised above the bottom of the hole and will be inspected to ensure that it is not clogged during installation. The annular space between the hole and the sampling tube will be sealed at the surface with hydrated bentonite, to prevent dilution of the samples by above-ground air. The soil gas sampling probe will remain in place for the duration of the CERCLA PH3 soil gas sampling program (at least for the first 5 years).

Field Instrumentation: The primary field instrument for measuring PH3 is the Draeger Pac III gas monitor outfitted with the PH3 detector with a range of 0 to 20 ppm. In addition, a Draeger Pac III gas monitor outfitted with the PH3 detector with a range of 0 to 1,000 ppm will be utilized as needed and as described in the procedures below. All Draeger Pac III gas monitors used for this project will be calibrated no less than every 14 days.

Monitoring Procedure: The soil gas PH3 monitoring procedure is the same for all ET cap discrete surface areas as described here. For each soil gas sampling location:

- Check and record the PH3 concentration at the breathing zone by performing industrial hygiene ambient air monitoring (approximately 4 to 5 feet above the ground surface) as described in Section 4.4.2.2. This measurement will be made using the Draeger Pac III field instrument (0 to 20 ppm range). Note, while PH3 is not expected in ambient air at these locations, monitoring personnel should follow the procedures in the *HASP* and the

procedures as outlined in the *RCRA Pond Area Work Rules* if PH3 is detected at the breathing zone. In addition, the field teams will record the location (by GPS) and concentrations whenever a personnel monitor alarm sounds. An investigation will be performed and documented to determine, if possible, the source of the PH3 causing the alarm.

- Ensure that the gas sampling pump has been calibrated that sampling day and the Draeger Pac III has been calibrated within the past 14 days (see Attachment A of the QAPP).

- Hook up the PH3 sampling train to the soil gas sampling probe valve. The PH3 sampling train consists of the sampling tubing, the gas sampling pump, and the Draeger Pac III field instrument equipped with the sampling "cap". The sampling train fittings and tubing will be compatible with measuring PH3. The soil gas sampling probe should remain in the "shut" position" to this point.

- Turn on the soil gas sampling probe valve and the gas sampling pump. Set gas sampling pump flowrate to 500 ml/minute. Purge the soil gas sampling probe for three (3) minutes.

- After purging for three minutes, record the first of three (3) readings from the Draeger Pac III field instrument. Shut the soil gas sampling probe valve, turn off the gas sampling pump, and remove the Draeger Pac III sampling "cap" to allow the Draeger Pac III to "zero-out" in ambient air.

- If the PH3 reading on the Draeger Pac III field instrument exceeds the upper range of the instrument (20 ppm), then the sampling should be performed using the Draeger Pac III field instrument with the higher range (0 to 1,000 pm). **The procedure will be the same, except that a 10-liter Tedlar bag will be placed at the end of the sampling train (after the Draeger Pac III field instrument) to capture the exhaust gas from the field instrument for later treatment.** Caution should be used to ensure that the sampling train is air-tight to prevent leaks of the sampled gas.

- Once the Draeger Pac III has reached zero in ambient air, replace the sampling "cap", turn on the sample pump, open the soil gas sampling probe valve, and take the second reading once the Draeger Pac III reading has stabilized. Then shut off the soil gas sampling probe valve and gas sampling pump. Repeat for the third reading.

- Record the three individual readings, calculate the average of the PH3 readings and record.

- If any soil gas probe sampling location PH3 concentration $\geq$ the action level of 0.05 ppm PH3, the same soil gas probe shall be re-measured within five (5) business days to confirm the exceedance. If the confirmation measurement is also $\geq$ the action level of 0.05 ppm PH3, then further monitoring is triggered, i.e., additional industrial hygiene

ambient air monitoring, a surface scan, and low-lying area monitoring (if a near-by low-lying area exists).

4.4.2.2 *ET Cap Industrial Hygiene Ambient Air PH3 Monitoring Procedure*

Check and record the PH3 concentration at the breathing zone by performing industrial hygiene ambient air monitoring (approximately 4 to 5 feet above the ground surface). This measurement will be made using the Draeger Pac III field instrument (0 to 20 ppm range). All results will be noted on a field form or logbook noting the time of measurement, person taking the measurement, estimated wind direction, and the results of the measurement. Note, while PH3 is not expected in ambient air at these locations, monitoring personnel should follow the procedures in the *HASP* and the procedures as outlined in the *RCRA Pond Area Work Rules* if PH3 is detected at the breathing zone. In addition, the field teams will record the location (by GPS) and concentrations whenever a personnel monitor alarm sounds. An investigation will be performed and documented to determine, if possible, the source of the PH3 causing the alarm, providing that the procedures in the *HASP* and the procedures as outlined in the *RCRA Pond Area Work Rules* can be safely followed.

If any industrial hygiene ambient air monitoring result is ≥ 1.0 ppm PH3, the monitoring personnel must immediately leave the area as prescribed in the HASP by moving upwind to an area that is < 0.3 ppm PH3 in ambient air. An industrial hygiene ambient air monitoring result of ≥ 1.0 ppm PH3 also triggers fenceline monitoring as described in Section 4.4.2.5 within 15 minutes of the monitoring result ≥ 1.0 ppm PH3.

4.4.2.3 *ET Cap Surface Scan PH3 Monitoring Procedure*

The ET cap surface scan will only be performed if one or more of the soil gas monitoring results is confirmed to be ≥ the action level of 0.05 ppm PH3. The surface scan monitoring procedure is based upon the procedure found in Section 3.3 of the *Pond 16S Monitoring and Reporting Plan - February 200*. A measurement of PH3 in the breathing level (as described in Section 4.4.2.2) will also be recorded at the time of the surface scan measurement and the field teams will record the location (by GPS) and concentrations whenever a personnel monitor alarm sounds. An investigation will be performed and documented to determine, if possible, the source of the PH3 causing the alarm, providing that the procedures in the *HASP* and the procedures as outlined in the *RCRA Pond Area Work Rules* can be safely followed.

Field Instrumentation: The primary field instrument for measuring PH3 is the Draeger Pac III gas monitor outfitted with the PH3 detector with a range of 0 to 20 ppm. All Draeger Pac III gas monitors used for this project will be calibrated no less than every 14 days.

Meteorological Conditions: The surface scanning will only be performed during certain meteorological conditions. The surface scanning will not be performed if any of the following meteorological conditions are encountered:

- Rain, snow or other precipitation
- Average wind speeds greater than 10 miles per hour

- Instantaneous wind speed greater than 15 miles per hour
- Snow cover or surface water accumulation (ponding)

Monitoring Procedure: The surface scanning will be conducted with an integrated sampler, which is a portable self-contained unit that consists of a stainless steel sampling probe, rotometer, battery-powered sampling pump, and a warmed-up, properly calibrated Draeger Pac III single field instrument (0 to 20 ppm range version). The integrated sampler is depicted on Figure 4-6. While sampling, the probe will be held approximately 1 to 4 inches above the ground surface. While walking each transect at a normal walking pace (2 to 3 miles per hour), the collection probe inlet will be steadily moved in a horizontal sweeping motion, from side-to-side to extend the width of the collection path to approximately 3 feet. The sampler flow rate will be set at approximately 500 cubic centimeters per minute.

While walking each area, the Draeger Pac III field instrument will be used to identify potential "hot spots" where PH3 gas may be releasing through the surface. If the Draeger Pac III alarm sounds (alarm set at 0.05 ppm PH3), the location will be marked with a flag so that further investigation can be conducted in that area, if warranted, to identify potential leak sources or locations. Once the monitoring area is scanned, each flagged hot-spot will be investigated further in an attempt to locate the exact source area of the PH3. The location of each flagged "hot spot" will be determined (by GPS) and recorded.

The surface scan PH3 monitoring procedure is based similar for all ET cap discrete surface areas as described here. For each ET cap discrete surface area, the surface scan procedure is as follows:

- Check and record the PH3 concentration at the breathing zone (approximately 4 to 5 feet above the ground surface). Set the Draeger Pac III alarm at 0.05 ppm PH3. This measurement will be made using the Draeger Pac III field instrument (0 to 20 ppm range). Note, while PH3 is not expected in ambient air at these locations, monitoring personnel should follow the procedures in the HASP and the procedures as outlined in the *RCRA Pond Area Work Rules* if PH3 is detected at the breathing zone. In addition, all personnel alarms will be recorded including the measurement reading and location (by GPS). An investigation will be performed and documented to determine, if possible, the source of the PH3 causing the alarm.
- The approximate walking pattern for each ET cap discrete surface area is shown on Figures 4-1 through 4-5.
- Check to ensure that meteorological conditions are met. Wind speed will be measured prior to the start of the surface scan using a hand-held anemometer. Record wind speed and ambient conditions. If meteorological conditions are not met, reschedule the surface scan.
- Ensure that the gas sampling pump has been calibrated that sampling day and the Draeger Pac III has been calibrated within the past 14 days (see Appendix A of the QAPP).

- Hook up the PH3 surface scan sampling train as shown in Figure 4-6. The PH3 sampling train consists of the stainless steel sampling probe, rotometer, the gas sampling pump, and the Draeger Pac III field instrument equipped with the sampling "cap".

- At the start of the walking pattern, turn on the sampling pump (set at 500 ml/minute flowrate) and Draeger Pac III field instrument.

- Begin walking each transect at a normal walking pace (2 to 3 miles per hour), move the sampling probe inlet steadily in a horizontal sweeping motion, from side-to-side to extend the width of the collection path to approximately 3 feet. Maintain the probe inlet approximately 1 to 4 inches above the ground surface. The output of the Draeger Pac III field instrument will be logged at least once each minute and any time the alarm sounds. Complete the entire walking pattern for the monitoring area. At any point during the surface scanning, if the Draeger Pac III alarms, note the level of PH3 and place a flag at the area for later, further investigation.

- If there were any areas during the first or second pass that were flagged as result of a Draeger Pac III alarm, return to that spot, perform industrial hygiene ambient air monitoring as described in Section 4.3.2.2, log the location via GPS, and attempt to locate the source of the PH3 using the Draeger Pac III, if possible, providing that the procedures in the *HASP* and the procedures as outlined in the *RCRA Pond Area Work Rules* can be safely followed. Record the information found concerning the "hot spot", including the maximum level of PH3 measured.

If any industrial hygiene ambient air monitoring result is ≥ 1.0 ppm PH3, the monitoring personnel must immediately leave the area as prescribed in the HASP by moving upwind to an area that is < 0.3 ppm PH3 in ambient air. An industrial hygiene ambient air monitoring result of ≥ 1.0 ppm PH3 also triggers fenceline monitoring as described in Section 4.4.2.5 within 15 minutes of the monitoring result ≥ 1.0 ppm PH3.

4.4.2.4 ET Cap Low-Lying Area PH3 Monitoring Procedure

In order to determine if PH3, which is heavier than air, is moving downhill along the ET cap surface to a "low-lying" area where the PH3 could accumulate, adjacent low-lying area PH3 monitoring will be performed **only if industrial hygiene ambient air or surface scan monitoring results are ≥ 0.05 ppm PH3 and if an adjacent low-lying area exists in the immediate area of the monitoring that ≥ 0.05 ppm PH3**. An adjacent low-lying area will be defined as a depression in the ground surface either on the ET cap or immediately off the ET cap located within 100 feet of the location of the monitoring that ≥ 0.05 ppm PH3.

Adjacent Low-Lying Area Monitoring Procedure: If an adjacent low-lying area is identified, eight locations will be selected within the bottom of the low-lying area. The eight locations will be identified judgmentally in order to provide adequate area coverage of the low-lying area. At each of the eight selected locations within the low-lying area, check and record the PH3 concentration at the breathing zone by performing industrial hygiene ambient air monitoring

(approximately 4 to 5 feet above the ground surface). This measurement will be made using the Draeger Pac III field instrument (0 to 20 ppm range) and recorded on a field form or logbook. In addition, the field teams will record the location (by GPS) and concentrations at each monitoring location. An investigation will be performed and documented to determine, if possible, the source of the PH3 if measured ≥ 0.05 ppm, providing that the procedures in the *HASP* and the procedures as outlined in the *RCRA Pond Area Work Rules* can be safely followed.

If any low-lying area monitoring result is ≥ 1.0 ppm PH3, the monitoring personnel must immediately leave the area as prescribed in the HASP by moving upwind to an area that is < 0.3 ppm PH3 in ambient air. An industrial hygiene ambient air monitoring result of ≥ 1.0 ppm PH3 also triggers fenceline monitoring as described in Section 4.4.2.5 within 15 minutes of the monitoring result ≥ 1.0 ppm PH3.

4.4.2.5 *Fenceline PH3 Monitoring Procedure*

If any industrial hygiene ambient air monitoring result or low-lying area monitoring result is ≥ 1.0 ppm PH3, the monitoring personnel must immediately leave the area as prescribed in the HASP by moving upwind to an area that is < 0.3 ppm PH3 in ambient air. An industrial hygiene ambient air monitoring or low-lying area result of ≥ 1.0 ppm PH3 triggers fenceline monitoring within 15 minutes of the monitoring measurement result ≥ 1.0 ppm PH3. The fenceline monitoring is based upon the fenceline monitoring as developed under the RCRA Pond UAO as presented in the *RCRA Pond UAO – SOW Task 1 – Air Monitoring Plan – Part II.* Rationale and the approach for fenceline monitoring is presented in the aforementioned Plan. The fenceline monitoring as described in this FSP is similar but separate from fenceline monitoring as required by the RCRA Pond UAO.

Fenceline Monitoring Procedure: Within 15 minutes of any industrial hygiene ambient air monitoring result or low-lying area monitoring result which is ≥ 1.0 ppm PH3, fenceline monitoring will be triggered by taking ambient air monitoring measurements (a total of nine [9] locations) along the fenceline adjacent to Highway 30. These nine locations are shown on Figure 4-7.

Measurements at each location will be taken at breathing level (4 to 5 feet above ground level) and at ground level (approximately 4 to 6 inches above ground level). The Monitoring Technician will use digital readout PH3 monitors (Draeger Pac III monitors equipped with the 0 to 20 ppm PH3 sensor). Monitoring equipment providing comparable or better performance may be substituted for the named equipment in the future. The fenceline threshold screening level has been conservatively set at > 0.25 ppm PH3. Table 4.1 provides an overview of these procedures and associated PH3 threshold response levels.

Sites 1 through 4 are located near the Union Pacific railroad line and spur tracks into the FMC and Simplot properties. At these locations there is a potential that diesel emissions from locomotive engines idling on the adjacent tracks may interfere with the Draeger Pac III sensors and provide false positive detections of PH3. In addition, Site 1 is located in close proximity to the operating Simplot Don Plant and there is a potential that emissions from the Simplot sulfuric acid plant and/or ammonia plant may interfere with the Draeger Pac III sensors and provide false

positive detections of PH3. If the Monitoring Technician observes a non-zero PH3 reading at these locations and also observes a nearby idling railroad engine, smells engine exhaust, or smells distinct sulfur or ammonia odors, the Monitoring Technician will record the reading and also note the presence and location of the suspected source of interference relative to the monitoring site. If a potential false positive is above the fenceline threshold screening level of 0.25 ppm PH3, the Monitoring Technician will move to each of the adjacent monitoring stations and take a reading. If the adjacent monitoring station readings are zero at both breathing and ground levels, the Monitoring Technician will return to the site of the initial detection and take another reading. If the second reading is still above the fenceline threshold screening level of 0.25 ppm PH3, then the Monitoring Technician will immediately proceed with the offsite monitoring and actions as described in below. If either of the adjacent monitoring station readings are non-zero at either of the breathing or ground levels, then the Monitoring Technician will immediately proceed with the offsite monitoring and actions as described below.

The Monitoring Technician will complete a log sheet by entering the meter reading for each round of monitoring at each site (location and height). The Monitoring Technician will sign and date the form and submit it to the Reporting Coordinator on a daily basis (Saturday and Sunday log sheets submitted Monday morning).

Off-Site Monitoring Procedure: FMC shall monitor PH3 levels at five points along Highway 30 whenever a PH3 concentration along the FMC fenceline exceeds the threshold-screening level of 0.25 ppm. The first offsite measurement shall be made within 15 minutes unless access is delayed by factors outside of FMC's control, in which case the measurement will be taken as soon as possible. The first measurement shall be taken at Site A, as shown in Figure 4-7. A direct-reading personal PH3 monitor shall be used in taking these measurements. The next measurements shall be taken at Sites B, C, D and then E. The Monitoring Technician will notify (by telephone) the Site Health and Safety Manager and maintain contact with the Site Health and Safety Manager while collecting the measurements described in this section.

If any reading along Highway 30 is above 0.25 ppm PH3, the Monitoring Technician will continue to monitor all 5 sites in rotation and will check for any signs of occupancy along Highway 30 and on the Union Pacific railroad tracks. If any PH3 measurement at any of the 5 monitoring locations along Highway 30 exceeds 0.25 ppm FMC shall (a) notify and offer to escort any pedestrians, joggers, persons stopped or working along the adjacent area, train switchers, stranded or stopped motorists from the area along the highway, and/or idling trains on the Union Pacific Railroad line; (b) advise the local police[1] that the properties should be evacuated; and (c) make notifications specified below.

Notice of any public evacuation shall be made by phone to the Shoshone-Bannock Tribes, the Power County Sheriff, and EPA Region 10 (CERCLA On Scene Coordinator) as soon as possible but no longer than 1 hour after the evacuation has been completed. This notification will be confirmed by email no later than the end of the next business day. The Monitoring Technician (or Site Health and Safety Manager) shall also call the Union Pacific Response

[1] The Power County Sheriff's Office has advised FMC that it should not be notified of elevated phosphine levels along Highway 30 unless their assistance is needed.

Management Communications Center (RMCC) at 1-888-877-7267 if an idling train should be moved out of the area.

Notification of a confirmed exceedance of PH3 threshold levels at Highway 30, as specified on the Notification List below (independent of whether Highway 30 was occupied at the time of measurement), shall be made to EPA Region 10 (CERCLA On Scene Coordinator), the Power County Sheriff, and the Shoshone-Bannock Tribes by telephone as soon as possible and no longer than one hour after public evacuation is complete. This notification will be confirmed by email no later than the end of the next business day. The same data shall be forwarded to these parties by email.

Notification List

Regulatory Agency/Tribal Official	Confirmed PH3 Exceedances along Hwy 30
CERCLA On Scene Coordinator U.S. EPA, Region 10 (208) 378-5773	✓
Shoshone-Bannock Tribes Emergency Management & Response (208) 237-0137 (during business hours) and via the Fort Hall Police Dispatcher ((208) 478-4000) during non-business hours	✓
Power County Sheriff 550 Gifford American Falls, ID (208) 226-2319	✓

The Monitoring Technician shall continue measurements at the five sites along Highway 30 until two consecutive sets of measurements indicate that PH3 levels are less than 0.25 ppm at Sites A through E. Offsite monitoring and surveillance shall then be discontinued, unless otherwise directed by the FMC Remediation Director.

4.4.3 ET Cap Contingent Topsoil Chemistry Monitoring Procedures

If the confirmation measurement of the soil gas probe remains above the action level of 0.05 ppm PH3, then monitoring of critical ET cap soil properties will be performed. Three (3) samples of the ET cap soil (top 12 inches) will be collected in the immediate area (within 30 feet) of the soil gas probe with the exceedance and submitted to the laboratory for soil pH analysis. These soil pH results would be compared to the baseline soil pH as reported in *Remedial Design Data Gap Report for the FMC Plant OU – January 2014* to determine if the pH is being significantly altered. If the measured soil pH is outside the range of 5.0 to 9.0, then three (3) soil density measurements will be made in the same area from samples collected adjacent to the pH soil sampling locations. Undisturbed soil samples would be collected and

submitted to the laboratory for soil density analysis. The soil density results will be compared to the soil density specifications of the RD. If measured soil density is outside the range of 80% of maximum dry density to 90% of maximum dry density, a work plan will be developed and submitted to EPA proposing further action(s) to evaluate the changes in the soil properties. Specific soil sampling procedures are presented below.

4.4.3.1 ET Cap Contingent Topsoil pH Monitoring Procedure

If ET cap soil pH monitoring is triggered by a soil gas confirmation measurement above the action level of 0.05 ppm PH3, then the following soil pH sampling will be conducted:

- Record the date, time, inspector's name on the form and sign the form.
- Check and record the PH3 concentration at the breathing zone (approximately 4 to 5 feet above the ground surface). Note, while PH3 is not expected in ambient air at these locations, monitoring personnel should follow the procedures in the *HASP* and the procedures as outlined in the *RCRA Pond Area Work Rules* if PH3 is detected at the breathing zone.
- Select three random locations within a 30-foot diameter area around the soil gas probe location that had the confirmed soil gas result $\geq$ 0.05 ppm PH3.
- Using a shovel, dig down at each selected sample site to a depth of approximately 12 inches bgs, placing the removed soil into a bucket or other suitable container.
- After mixing the soil, take one composite grab sample from the bucket for submittal to the laboratory for soil pH analysis using method EPA 9045C.
- Place the remaining soil back into the excavation hole and compact to the original surface level. Record the sample location using GPS. Mark the sample location with a flag in the event subsequent soil density measurements are triggered.
- Repeat at each of the three (3) selected sample locations for a total of three composite grab samples.

4.4.3.2 ET Cap Contingent Topsoil Density Monitoring Procedure

If ET cap soil pH monitoring indicates that the average of the three (3) soil pH measurements is outside the range of 5.0 to 9.0, then three (3) soil density measurements will be made in the same area from samples collected adjacent to the three (3) soil pH sampling locations per the following procedure:

- Record the date, time, inspector's name on the form and sign the form.

- Check and record the PH3 concentration at the breathing zone (approximately 4 to 5 feet above the ground surface). Note, while PH3 is not expected in ambient air at these locations, monitoring personnel should follow the procedures in the *HASP* and the procedures as outlined in the *RCRA Pond Area Work Rules* if PH3 is detected at the breathing zone.

- In a location adjacent to each of the three (3) pH sample locations, dig down through the soil to a depth of 6 inches bgs, placing the soil to the side.

- Collected an undisturbed soil sample from a depth of 6 to 18 inches. Prepare the undisturbed sample for submittal to the laboratory for soil density analysis using method ASTM D7263-09.

- Place the stockpiled soil back into the excavation hole and compact to the original surface level. Record the sample location using GPS.

- Repeat at each of the three (3) selected sample locations for a total of three undisturbed samples.

4.5 GAMMA CAP INTEGRITY MONITORING PROCEDURES

4.5.1 Gamma Cap Stormwater/Snowmelt Runoff Monitoring Procedures

The cap stormwater/snowmelt runoff monitoring will be performed (1) semi-annually, and (2) within 48 hours of a 25-year, 24-hour storm event defined as 2.1 inches (or more) of precipitation within a 24 hour period (NOAA, 1973) as reported for the Pocatello airport weather station. The objective of these visual inspections will be to determine if cap surface erosion, sedimentation, or ponding has occurred. The criteria for localized erosion or ponding requiring maintenance has been established as an area of 100 square feet (a 10 foot by 10 foot or 11 foot diameter area) or greater where precipitation ponding is observed or could occur to a depth of 1 inch of water or greater. Stormwater/snowmelt diversionary/accumulation systems are inspected to note and remove debris, sediment, or other obstructions. As the stormwater/snowmelt runoff monitoring requires that the surface of the cap and the associated diversionary structures are visible, this monitoring cannot be performed if the cap is snow-covered. If snow-covered, the stormwater/snowmelt runoff monitoring will be re-scheduled when conditions permit inspection.

Using the inspection form, the inspector will perform the following at each of the gamma cap surface areas:

- Record the date, time, inspector's name on the form and sign the form.
- Walk or drive around the outside of the gamma cap perimeter. Note any evidence of sheet erosion or erosion channels (rills). In areas where erosion mats have been placed,

check the condition of the cap surface and erosion mats to determine if one or more mats need to be replaced.

- Walk over the entire surface of the gamma cap surface. Note any evidence of sheet erosion or erosion channels. In areas where erosion mats have been placed, check the condition of the cap surface and erosion mats to determine if one or more mats need to be replaced.
- Note any ponding of accumulated precipitation particularly areas of 100 square feet (a 10 foot by 10 foot or 11 foot diameter area) or greater where precipitation ponding is observed or could occur to a depth of 1 inch of water or greater, erosion channels, or evidence of rodent activity that, in the judgment of the inspector, could reasonably be expected to result in soil erosion per run-off erosion that could compromise the integrity and functionality of the cap system.
- Inspect all associated stormwater diversionary structures (i.e., swales, ditches, accumulation areas, etc.) and note any excessive erosion or other damage and/or accumulation of sediment or debris that could impair the functionality of the diversion and drainage structures.
- Record any unacceptable conditions requiring maintenance and enter on the maintenance form. Record the date entered on the maintenance form.
- Any maintenance shown to be required based on inspection of the gamma cap surface and diversion structures will be performed as soon as practicable. Maintenance or repairs to the diversion and drainage structures that could impair the functionality of the diversion and drainage structures and maintenance and/or repairs to eliminate or prevent potential ponding on the cap surface will commence within seven (7) days unless delayed as specified below. Commencement of repairs and/or maintenance means starting field work for simple or minor maintenance, or initiation of engineering, planning and/or procurement of additional materials to perform the maintenance and/or repairs for more complex or larger scale maintenance. Maintenance or repairs will not be performed if frozen soil / snow cover / muddy conditions exist such that cap surface could be damaged as a result of gaining access to implement the repair/maintenance activity or are not feasible due to frozen soil conditions (typically between November 15 through April 15) at the gamma cap where maintenance/repairs are required. If maintenance or repairs are delayed by surface conditions, any repairs or maintenance will commence within seven (7) days of the presence of acceptable cap surface conditions. In the event maintenance or repairs must be delayed beyond commencement within seven (7) days for cause(s) other than frozen soil / snow cover / muddy conditions, FMC will notify EPA within 48 hours of the observation of a condition for which the maintenance/repair will be delayed. The notification will include a description of the reason(s) for the necessary delay and a schedule for commencing the maintenance and/or repairs.
- Following completion of repairs, confirmation will be documented on the maintenance form.

4.5.2 Cap Rodent/Insect Infestation Monitoring Procedures

The cap rodent/insect monitoring will be performed semiannually. The purpose of the cap rodent/insect infestation monitoring is to inspect the gamma cap surface to visually identify evidence of rodent burrowing or loss of vegetation from rodent or insect feeding. Inspections will be performed during the late spring (typically in June) and again in the fall (typically in September when burrowing rodents and insect activity has declined).

Using the inspection form, the inspector will perform the following at each of the gamma cap surface:

- Record the date, time, inspector's name on the form and sign the form.
- Walk or drive around the outside of the gamma cap perimeter. Note any evidence of unusual rodent or insect activities, i.e., excessive burrowing, mounds of soil, and/or loss of vegetation that, in the judgment of the inspector, would result in poor vegetation coverage or unacceptable soil erosion per run-off erosion monitoring.
- Walk over and observe the surface of the gamma cap. Note any evidence of unusual rodent or insect activities, i.e., excessive burrowing, mounds of soil, and/or loss of vegetation that, in the judgment of the inspector, would result in poor vegetation coverage or unacceptable soil erosion per run-off erosion monitoring.
- Record any unacceptable conditions requiring maintenance and enter on the maintenance form. Record the date entered on the maintenance form.
- Corrective actions to address rodent/insect activity, e.g., fill holes or burrows, will be performed as soon as practicable. Maintenance to fill holes or burrows will not be performed if frozen soil / snow cover / highly muddy conditions exist (typically between November 15 through April 15) at the gamma cap surface where the maintenance is required, but, if delayed by surface conditions filling holes / burrows will commence within seven (7) days of the presence of acceptable cap surface conditions. Localized reseeding may be performed during spring (typically March through May) or in the fall (typically in September through October). Burrowing or insect activity may also warrant the use of pesticides to eradicate the pest. Following completion of repairs/corrective actions, confirmation will be documented on the maintenance form.

4.6 SITE-WIDE STORMWATER MANAGEMENT SYSTEM MONITORING PROCEDURES

The site-wide stormwater/snowmelt runoff monitoring will be performed (1) semi-annually, and (2) within 48 hours of a 25-year, 24-hour storm event defined as 2.1 inches (or more) of precipitation within a 24 hour period (NOAA, 1973) as reported for the Pocatello airport weather station. The objective of these visual inspections will be to determine if surface erosion, sedimentation, debris accumulation, or unintended ponding has occurred. The criteria for localized erosion or ponding requiring maintenance has been established as an area of 100 square feet (a 10 foot by 10 foot or 11 foot diameter area) or greater where precipitation ponding is observed or could occur to a depth of 1 inch of water or greater. Stormwater/snowmelt

diversionary/accumulation systems are inspected to note and remove debris, sediment, or other obstructions. As the stormwater/snowmelt runoff monitoring requires that the conveyance channels, berms, retention ponds, and the associated diversionary structures are visible, this monitoring cannot be performed if the stormwater management system components are snow-covered. If snow-covered, the stormwater/snowmelt runoff monitoring will be re-scheduled when conditions permit inspection.

Using the inspection form, the inspector will perform the following at each of the stormwater management system components (conveyance channels, berms, diversionary structures, and retention ponds):

- Record the date, time, inspector's name on the form and sign the form.
- Walk or drive along each stormwater management system component. Note any evidence of sheet erosion or erosion channels (rills). In areas where erosion mats have been placed, check the condition of the cap surface and erosion mats to determine if one or more mats need to be replaced.
- Note any unintended ponding of accumulated precipitation particularly areas of 100 square feet (a 10 foot by 10 foot or 11 foot diameter area) or greater where precipitation ponding is observed or could occur to a depth of 1 inch of water or greater, erosion channels, or evidence of rodent activity that, in the judgment of the inspector, could reasonably be expected to result in soil erosion per run-off erosion that could compromise the integrity and functionality of the cap system.
- Inspect all associated stormwater diversionary structures (i.e., swales, ditches, accumulation areas, etc.) and note any excessive erosion or other damage and/or accumulation of sediment or debris that could impair the functionality of the diversion and drainage structures.
- Record any unacceptable conditions requiring maintenance and enter on the maintenance form. Record the date entered on the maintenance form.
- Any maintenance shown to be required based on inspection of the stormwater management system components will be performed as soon as practicable. Maintenance or repairs to the diversion and drainage structures that could impair the functionality of the diversion and drainage structures and maintenance and/or repairs to eliminate or prevent potential, unintended ponding will commence within seven (7) days unless delayed as specified below. Commencement of repairs and/or maintenance means starting field work for simple or minor maintenance, or initiation of engineering, planning and/or procurement of additional materials to perform the maintenance and/or repairs for more complex or larger scale maintenance. Maintenance or repairs will not be performed if frozen soil / snow cover / muddy conditions exist such stormwater management system components could be damaged as a result of gaining access to implement the repair/maintenance activity or are not feasible due to frozen soil conditions (typically between November 15 through April 15) at the location where maintenance/repairs are required. If maintenance or repairs are delayed by surface conditions, any repairs or maintenance will commence within seven (7) days of the presence of acceptable surface conditions. In the event maintenance or repairs must be delayed beyond commencement

within seven (7) days for cause(s) other than frozen soil / snow cover / muddy conditions, FMC will notify EPA within 48 hours of the observation of a condition for which the maintenance/repair will be delayed. The notification will include a description of the reason(s) for the necessary delay and a schedule for commencing the maintenance and/or repairs.

- Following completion of repairs, confirmation will be documented on the maintenance form.

4.7 SITE SECURITY SYSTEMS MONITORING PROCEDURES

The site security system monitoring will be performed semi-annually. The objective of these visual inspections will be to determine if all site security systems are in place, in good repair, and functional. Using the inspection form, the inspector will perform the following at each of the site security system components (fences, gates, and signs):

- Record the date, time, inspector's name on the form and sign the form.
- Walk or drive along each fence around/within the FMC Plant Site. Ensure that fences are in place, in good repair, and functional. Note any evidence tampering or unauthorized entry. Also note other conditions which could facilitate unauthorized entry, e.g., erosion of soil under a fence which could allow easy, unauthorized entry.
- At each gate, ensure the gate is locked, in place, in good repair, and functional. Note any evidence tampering or unauthorized entry. If unlocked, check to see if authorized personnel are working within the gated area. If not, lock the gate if possible and note the condition of the gate.
- At each designated sign location, ensure the sign is in place and is legible. Note any missing signs or evidence of tampering.
- Record any unacceptable conditions requiring maintenance and enter on the maintenance form. Record the date entered on the maintenance form.
- Any maintenance shown to be required based on inspection of the site security system components will be performed as soon as practicable. Maintenance or repairs will commence within seven (7) days unless delayed as specified below. Commencement of repairs and/or maintenance means starting field work for simple or minor maintenance, or initiation of engineering, planning and/or procurement of additional materials to perform the maintenance and/or repairs for more complex or larger scale maintenance. Maintenance or repairs will not be performed if frozen soil / snow cover / muddy conditions exist such that the area is not reasonably accessible (typically between November 15 through April 15) at the location where maintenance/repairs are required. If maintenance or repairs are delayed by surface conditions, any repairs or maintenance will commence within seven (7) days of the presence of acceptable surface conditions. In the event maintenance or repairs must be delayed beyond commencement within seven (7) days for cause(s) other than frozen soil / snow cover / muddy conditions, FMC will notify EPA within 48 hours of the observation of a condition for which the maintenance/repair will be delayed. The notification will include a description of the

reason(s) for the necessary delay and a schedule for commencing the maintenance and/or repairs.

- Following completion of repairs, confirmation will be documented on the maintenance form.

4.8 EQUIPMENT DECONTAMINATION PROCEDURE

Equipment for cap integrity monitoring will not typically require decontamination. All of the monitoring equipment will be dedicated to a specific monitoring location. As a result, there is no possibility of cross contamination.

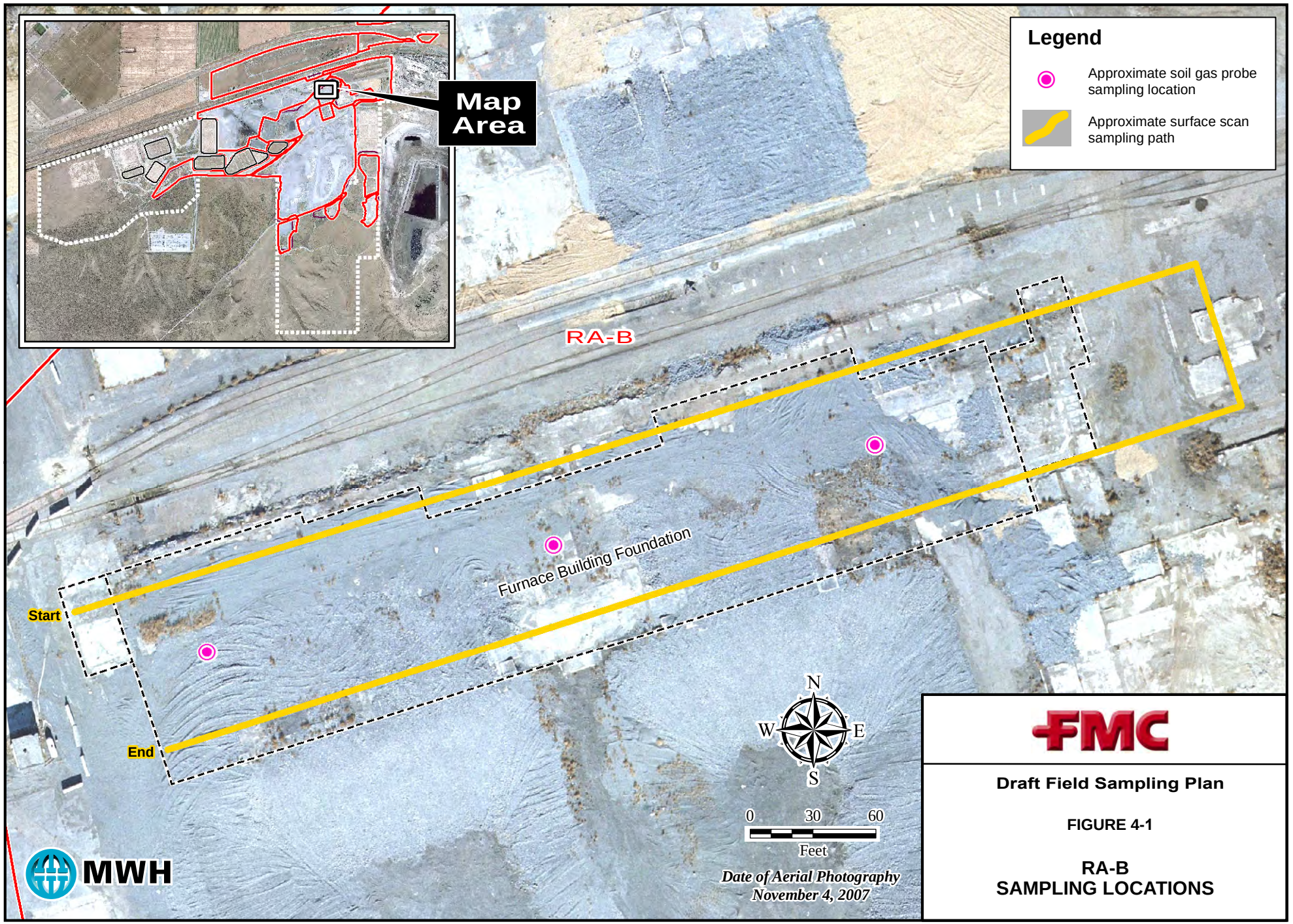
TABLE 4-1
PHOSPHINE THRESHOLD LEVELS AND RESPONSE PROCEDURES – FENCELINE AND HIGHWAY 30

Location	Magnitude	Response Actions
At plant fenceline (nine specific locations along the northern facility property fenceline)	PH_3 < 0.25 [1] ppm	No further response needed.
	PH_3 > 0.25 [1,2] ppm	Monitoring Technician notifies Health and Safety Manager of measurement and that he or she is proceeding to monitor along Highway 30. Monitoring Technician proceeds to first Highway 30 monitoring station within 15 minutes. Monitoring is discontinued at fenceline Sites 1 – 9. Monitoring Technician initiates monitoring along Highway 30.
Along Highway 30 (five specific sites known as Sites A – E)	PH_3 < 0.25 ppm	No further response needed if PH3 < 0.25 ppm. Monitoring Technician will resume routine and/or contingent monitoring program.
	PH_3 > 0.25 [2] ppm	Initial reading - Monitoring Technician will continue to take readings at all 5 sites in rotation. If the reading at any site is over 0.25 ppm, the Monitoring Technician will notify the Site Health and Safety Manager and will begin to clear the area of pedestrians, joggers, persons stopped or working, stranded or stopped motorists, train switchers, and idling trains. FMC will make notifications per Section 4.4.2.5. Monitoring Technician will continue monitoring activity until PH_3 readings are < 0.25 ppm at all of the five monitoring sites (Sites A – E) along Highway 30

1 These concentrations were conservatively set at the AEGL rather than the threshold value previously calculated using the EPA SCREEN3 dispersion model that was predicted to achieve the exposure level described in footnote 2 below.

2 These phosphine concentrations are taken from published federal guidelines referred to as Acute Exposure Guideline Levels (AEGLs). The most current AEGLs are found in the National Research Council Publication *Acute Exposure Guideline Levels for Selected Airborne Chemicals: Volume 6* (2007), which specify 0.25 ppm phosphine for an 8-hour AEGL2, as used in this plan.

I:\projects\FMCidaho\FMC_PH3MonitoringStrategy\FIGURES\Fig 4-3_FMC_RA-B_Sampling Locations_Dec2014.mxd 19 Dec 2014 DRAWN BY D. Severson



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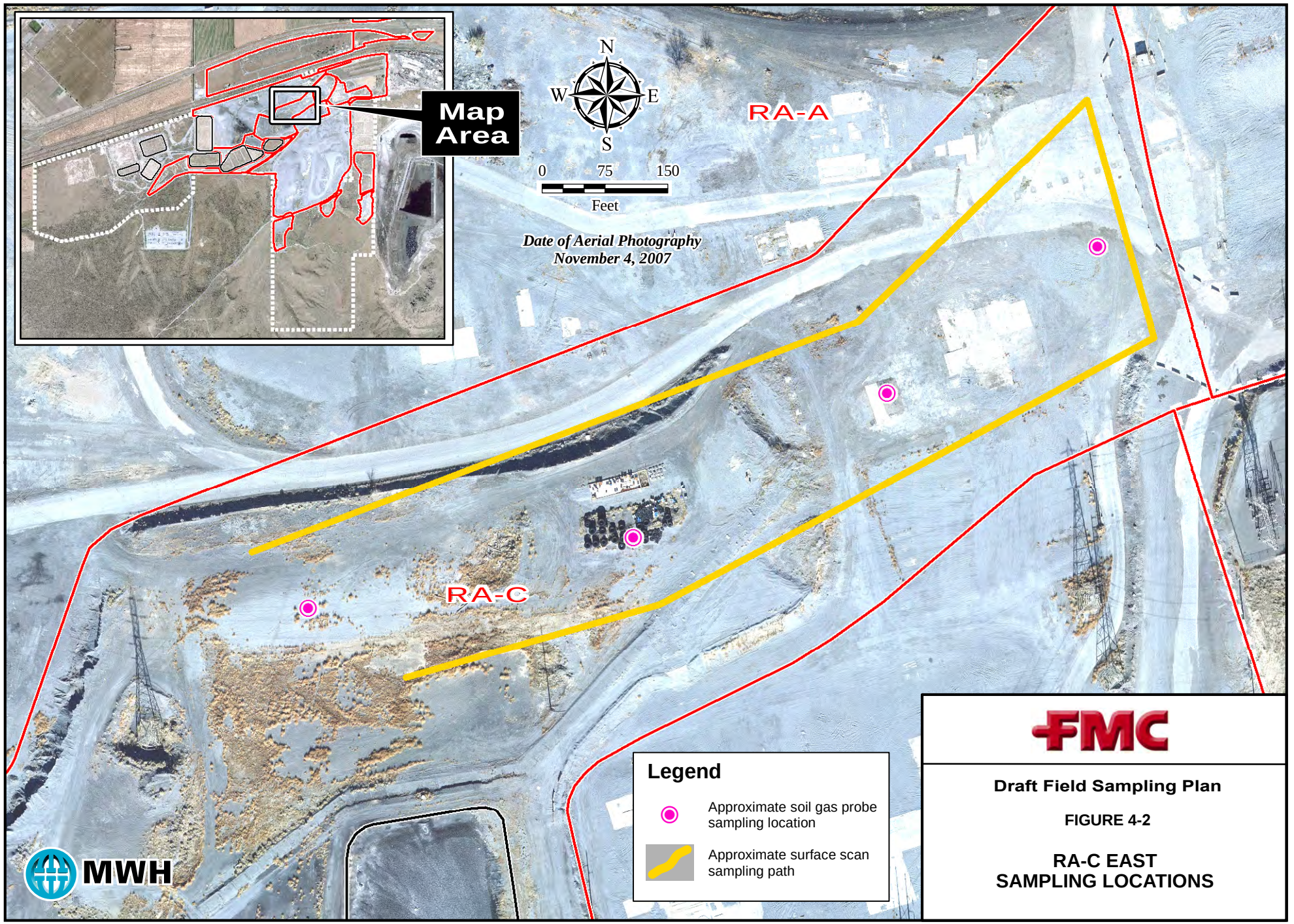

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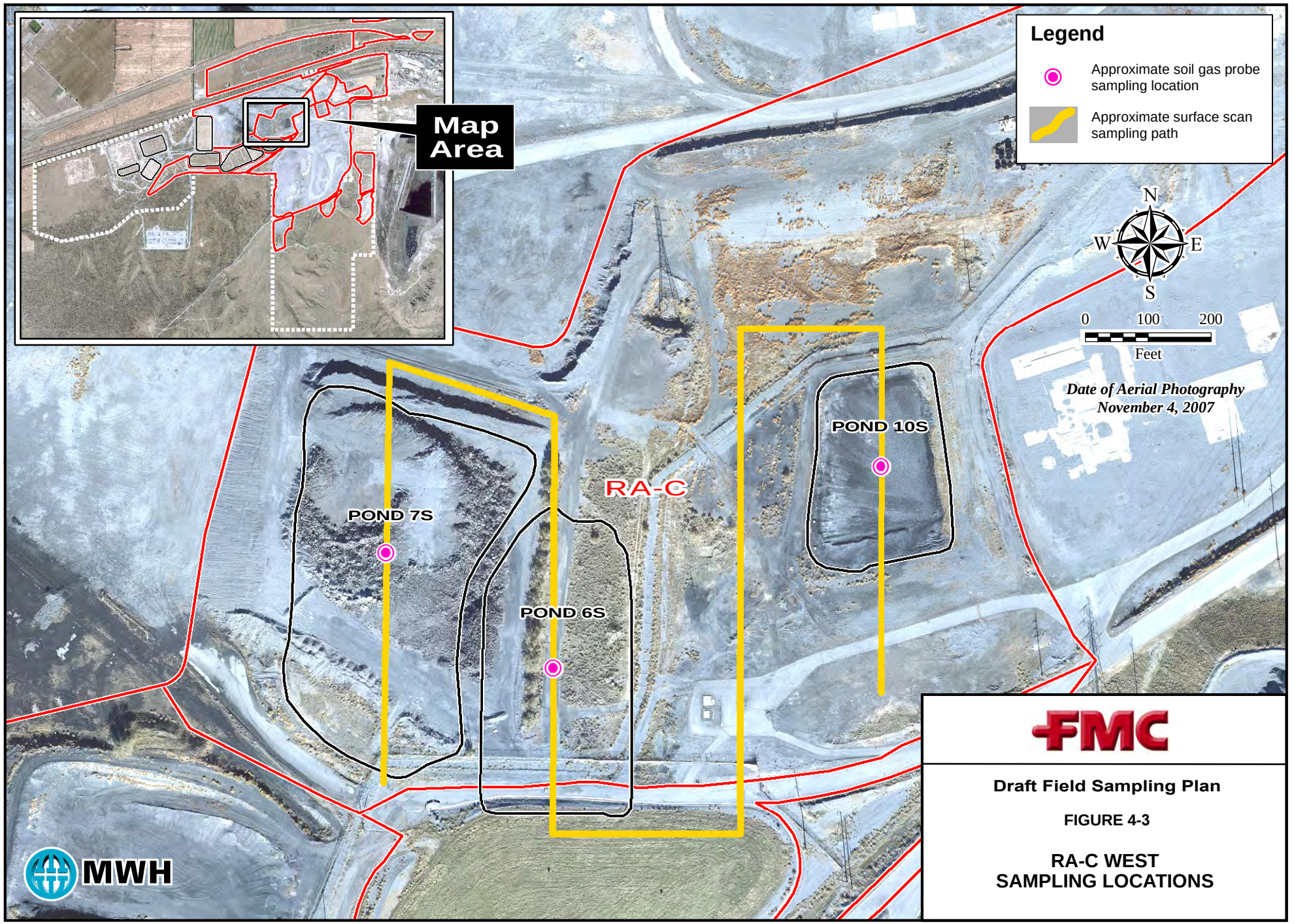
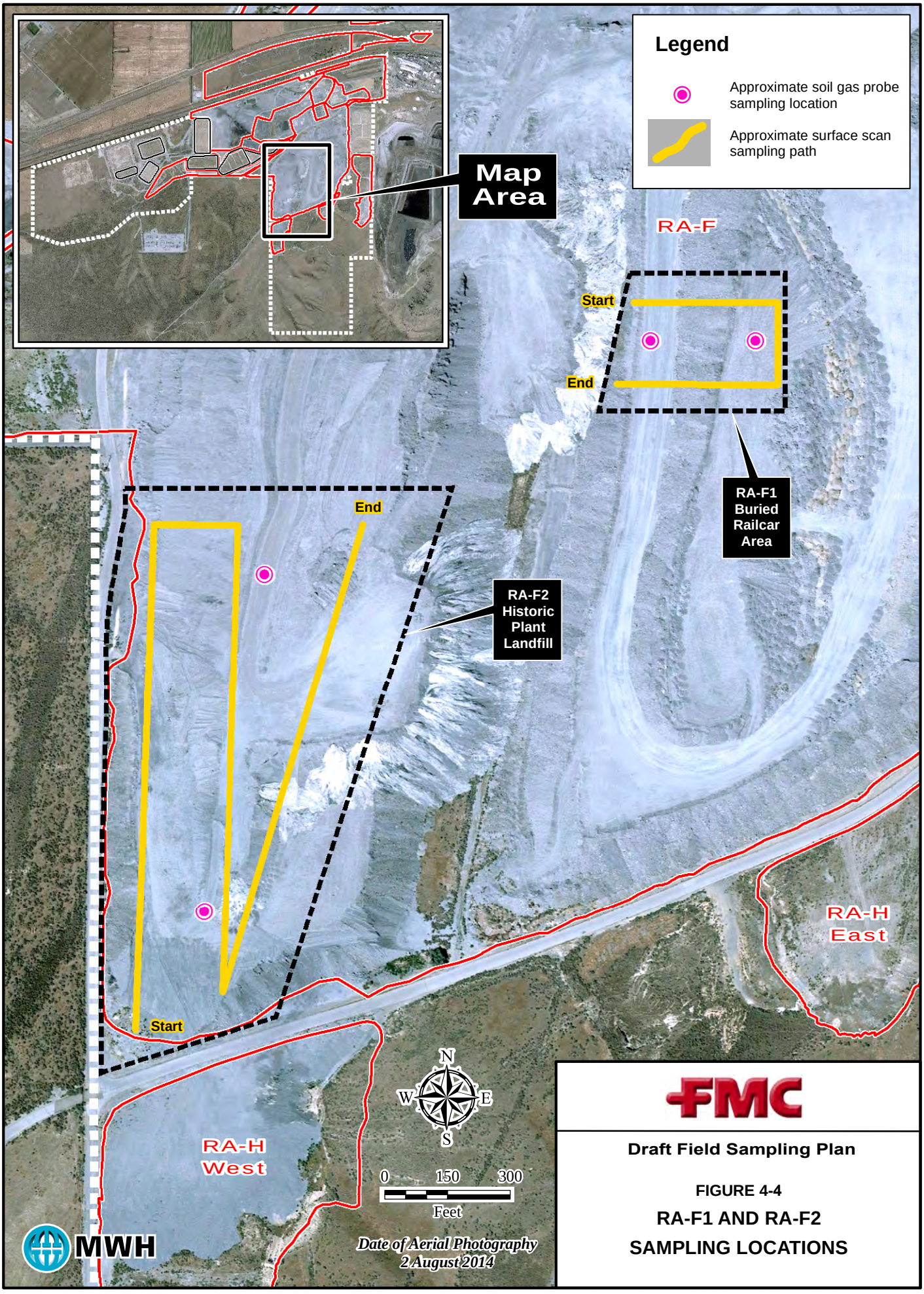


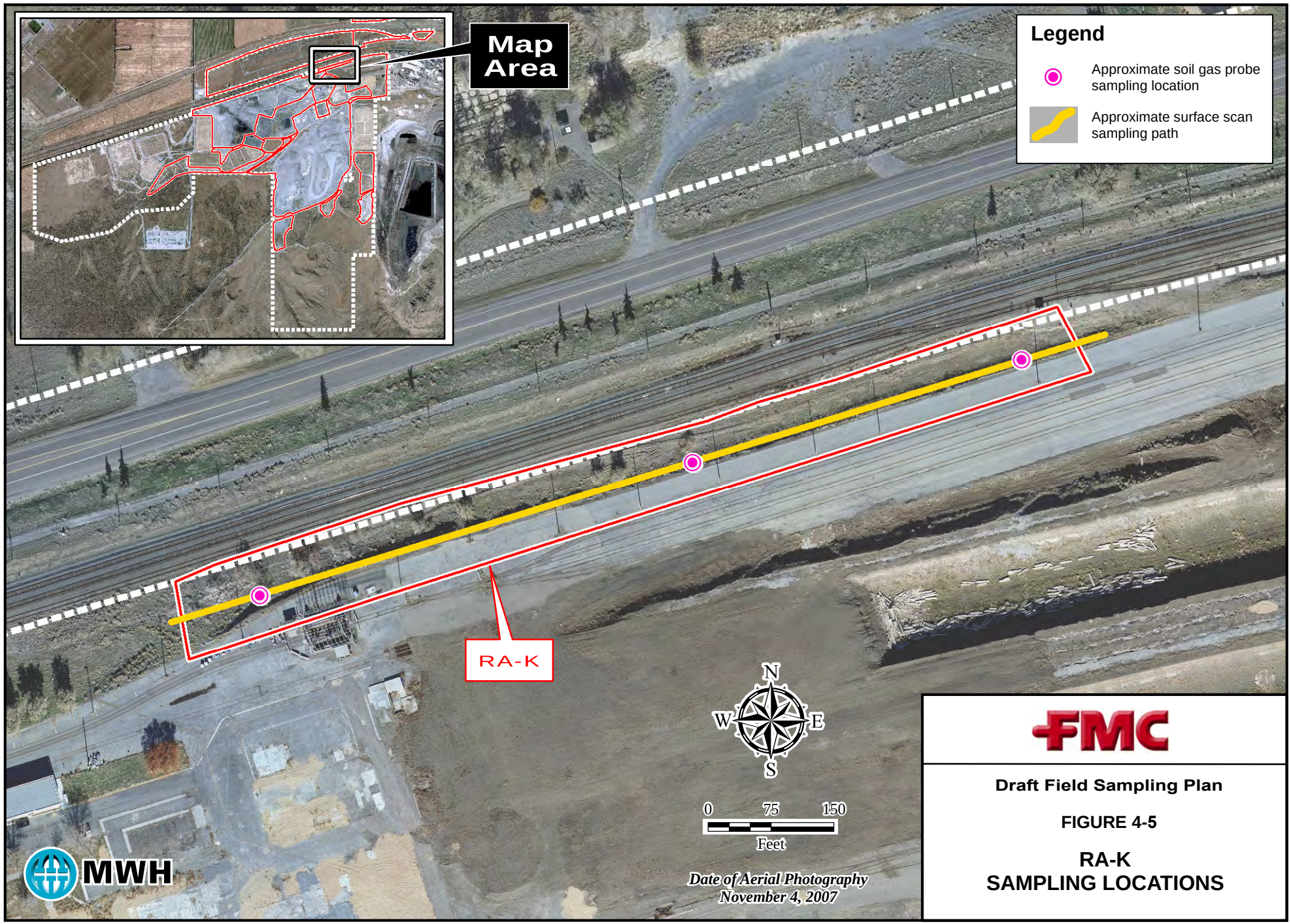


DRAWN BY D. Severson

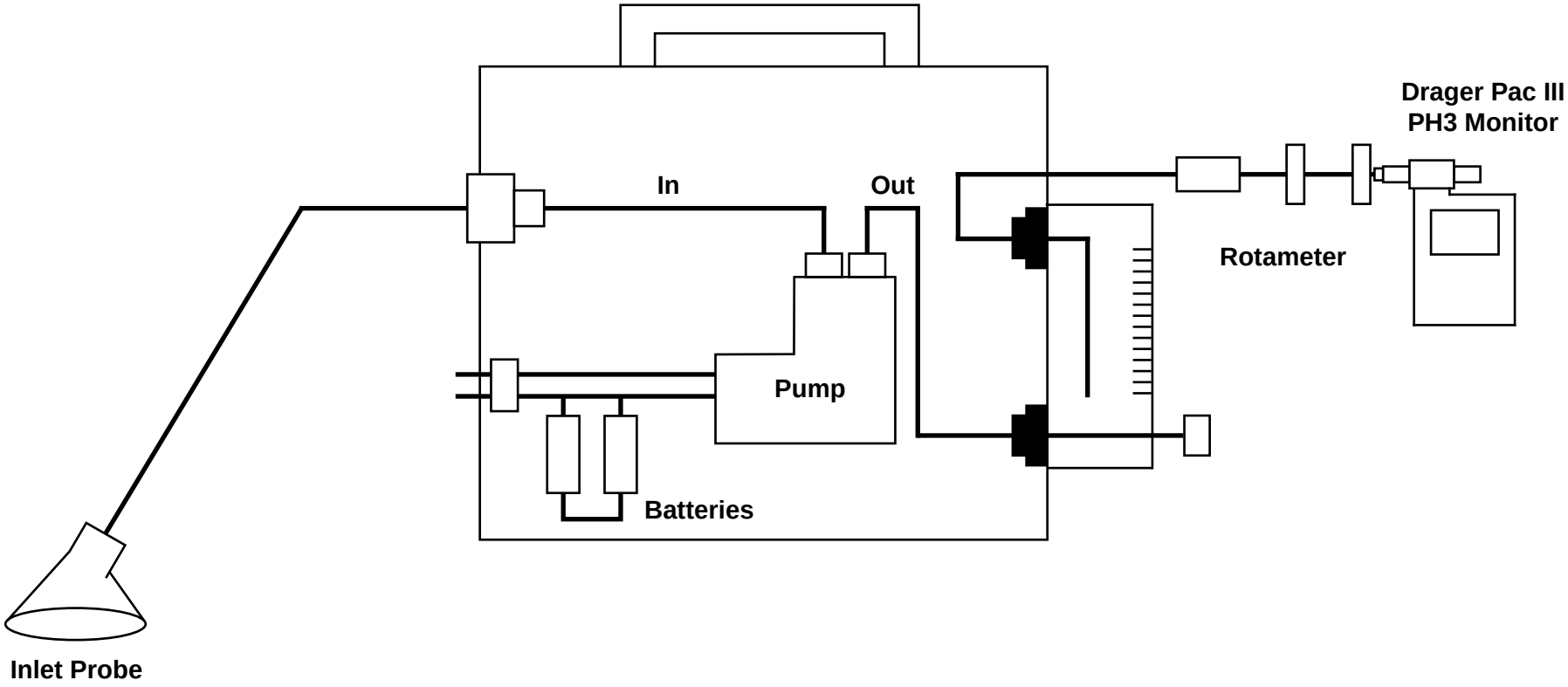
18 Dec 2014

I:\projects\FMCidaho\FMC_PH3MonitoringStrategy\FIGURES\Fig 4-6_FMC_RA-F1_SoilGasResults_Dec2014.mxd

I:\projects\FMCidaho\FMC_PH3MonitoringStrategy\FIGURES\Fig 4-7_FMC_RA-K_SoilGas_Flux Results_Dec2014.mxd 16 Dec 2014 DRAWN BY D. Severson



FILE *Fig 2-04_Surface Scan Integrated Sampler_610.ai 6/09/10*



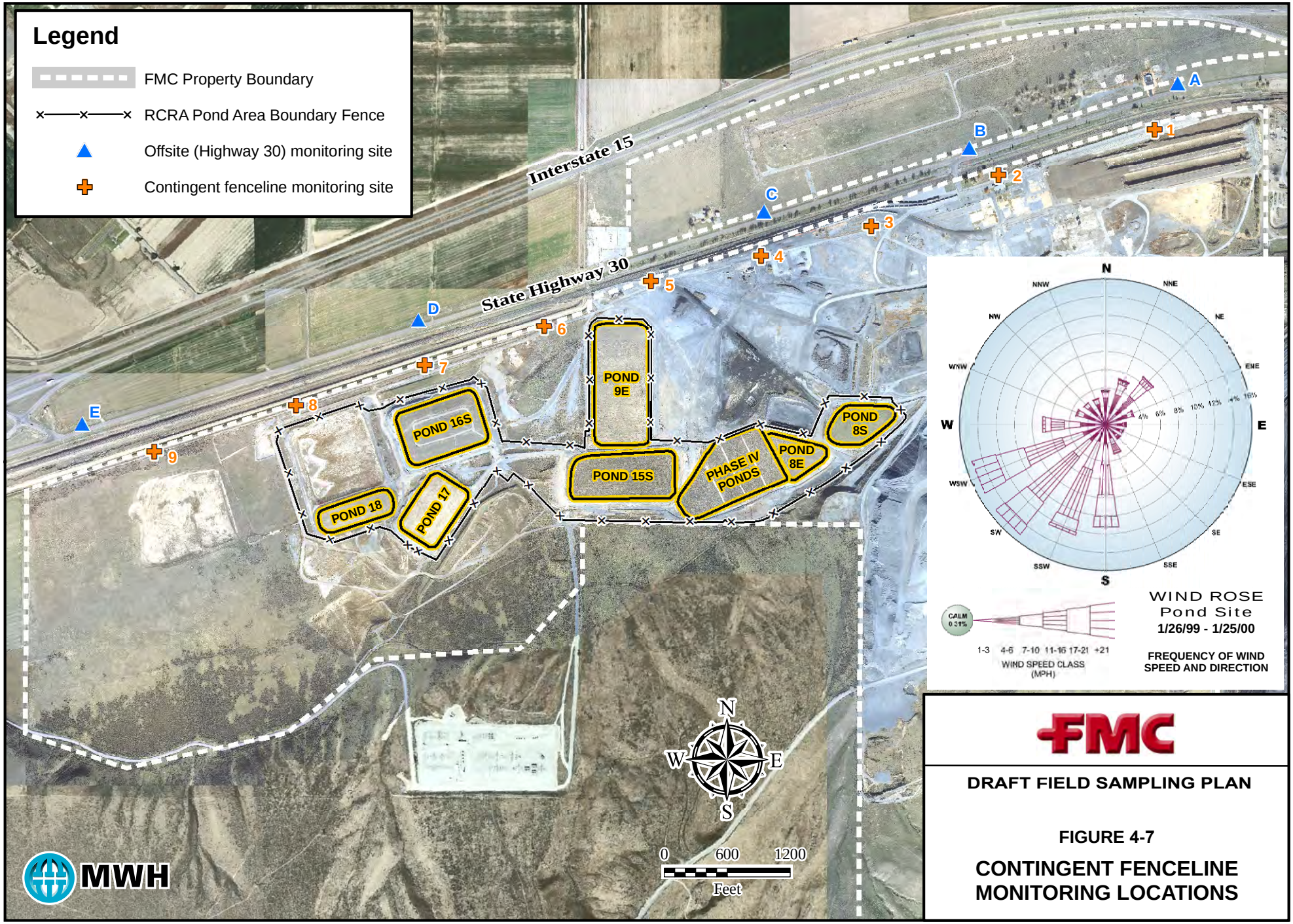
FMC

Draft Field Sampling Plan

FIGURE 4-6

SURFACE SCAN INTEGRATED SAMPLER

MWH


Legend
FMC Property Boundary
RCRA Pond Area Boundary Fence
Offsite (Highway 30) monitoring site
Contingent fenceline monitoring site
Interstate 15
State Highway 30
A
B
C
D
E
1
2
3
4
5
6
7
8
9
POND 9E
POND 16S
POND 15S
POND 18
POND 17
PHASE IV PONDS
POND 8E
POND 8S
N
NNW
NNE
NW
NE
WNW
ENE
W
E
WSW
ESE
SW
SE
SSW
SSE
S
4%
6%
8%
10%
12%
14%
16%
CALM 0.31%
1-3 4-6 7-10 11-16 17-21 +21
WIND SPEED CLASS (MPH)
WIND ROSE
Pond Site
1/26/99 - 1/25/00
FREQUENCY OF WIND SPEED AND DIRECTION
N
W
E
S
0 600 1200
Feet
MWH
FMC
DRAFT FIELD SAMPLING PLAN
FIGURE 4-7
CONTINGENT FENCELINE MONITORING LOCATIONS

5.0 WASTE MANAGEMENT PROCEDURES

The following waste streams are anticipated as result of the CERCLA monitoring and/or maintenance activities:

- Debris removed from stormwater ditch maintenance;
- Used equipment and parts from monitoring or maintenance activities;
- Investigation-derived waste (IDW) from soil or vegetation sampling;
- Rodent carcasses;
- Spent PPE; and
- Construction and maintenance debris.

These waste streams are all presumed to be non-hazardous, however, FMC is subject to all applicable RCRA requirements including 40 CFR §262.11 requirements for waste determination. Waste determinations will be performed on an as-needed basis. All waste determination records will be documented as part of the Operating Record per the requirements of 40 CFR § 262.40(c). Wastes will be managed in accordance with the applicable RCRA regulatory requirements.